



DYNAMIX DW-0002

DYNAMIX DW-0004

DYNAMIX DW-0006

FXO Gateway



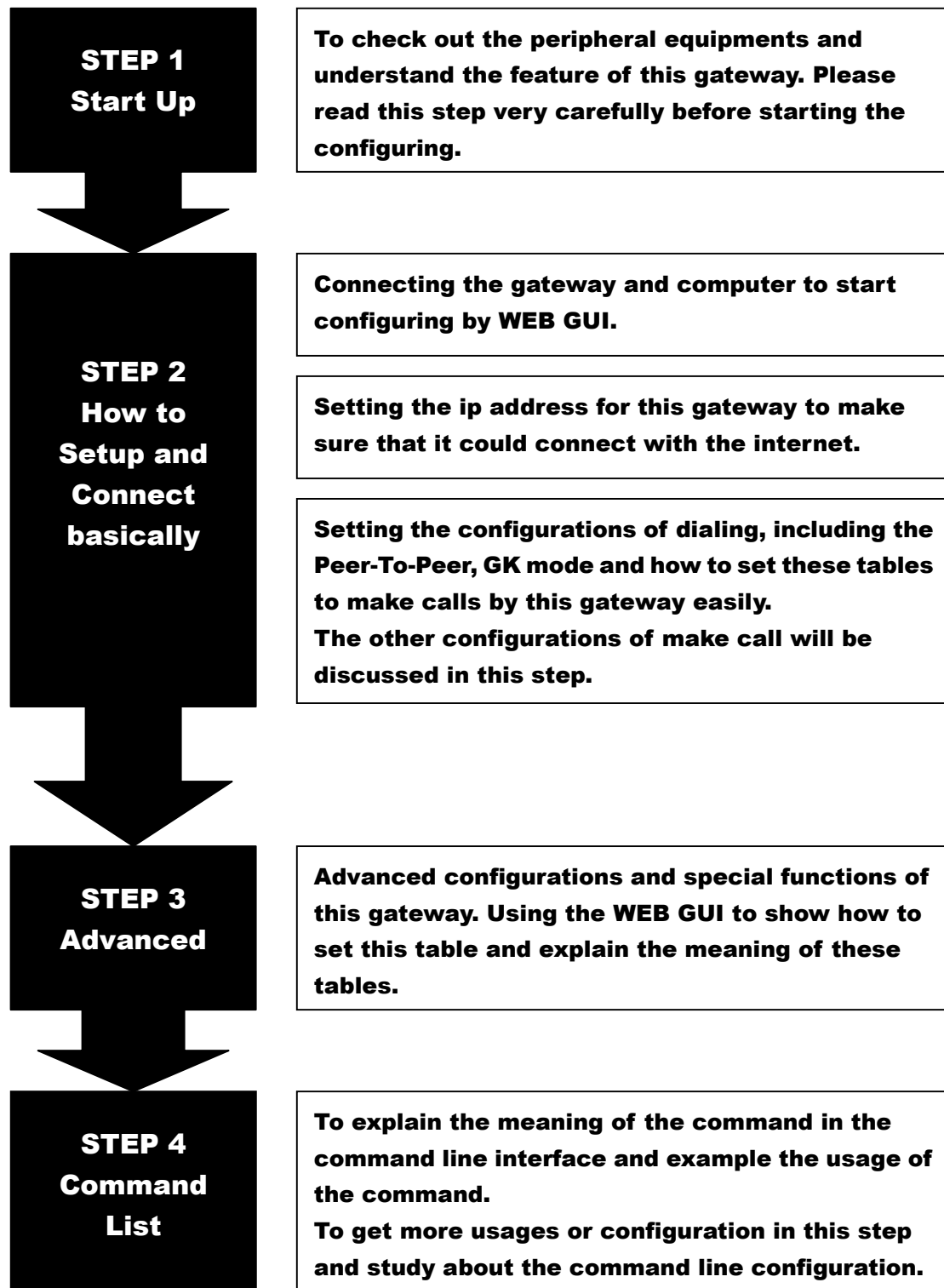
**User Manual
(2/4/6 ports)**

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Steps in configuration



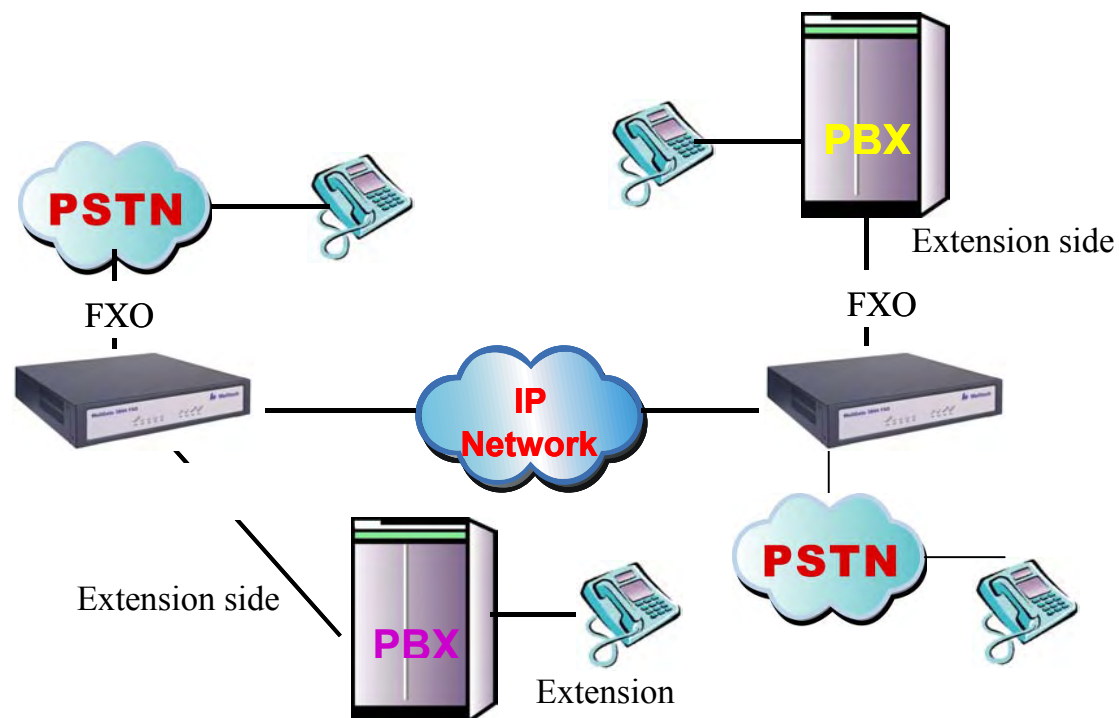
1. Start Up

1.1 Introduction

The FXO gateway provides voice/fax service over IP network with H.323 v3 protocol. By connecting to your existing ADSL or cable modem service, which allows the use of a single, network for voice and fax services with consequent saving in network infrastructure and greatly reduced telephone charges. Ideal solution for providing low cost communications between headquarters and branch offices in the world, as well as for SOHO and office telephony applications.

FXO GateWay provides analog lines to connect local PSTN/PTT interface (FXO), and converts voice/fax signal onto IP network. The management feature is via RS-232C COM port and TELNET.

Application Architecture



- ***FXO ports can connect with PSTN Line or Extension Line of PBX***

1.2 Features and specification

Features

- ITU-T H.323 v4 compliance
- Automatically Gatekeeper Discovery
- Secondary GK support
- Peer-to-Peer mode (non-Gatekeeper)
- Support auto-attendant (2nd dial Tone / Voice greeting)
- Dimensions : 221mm(W)*42mm(H)*217mm(L)
- Line hunting
- 2/4/6 RJ-11 FXO ports
- E.164 (Telephone Number Plan)
- DTMF dialing
- DTMF detection/generation
- TFTP software upgrade
- Remote configuration/reset via Telnet
- LED indication for system status
- LAN interface : One RJ-45 connector of 10Base-T
- Microsoft Netmeeting v3.0 compatible
- Support static IP and DHCP
- QoS by ToS (Type Of Service)
- SNTP (Simple Network Time Protocol)
- Security: Password setting

Audio feature

- Codec -- G.711 a/μlaw, G.723.1 (6.3K/bps), G.729A (Optional)
- VAD (Voice Activity Detection), CNG (Comfort Noise Generate)
- G.168/165-compliant adaptive echo cancellation
- Dynamic Jitter Buffer
- Bad Frame Interpolation
- Call Transfer (H.450.2)
- Call Forward (H.450.3)
- Call Hold (H.450.4)
- Gain Settings
- Provide Call Progress Tone: Dial tone, busy tone, call-holding tone and ring-back tone

Management Features:

Two easy ways for system configuration

- Console port: RS-232C port
- TELNET
- HTTP Brower (e.g. Internet Explorer)

1.3 Accessories and equipment

- ◆ The voice gateway in 2/4/6 FXO ports models and only one RJ-45 connector (WAN).
- ◆ The AC adapter.
- ◆ The CD of user manual.
- ◆ The connection cable in RS-232 interface.

1.4 Appearance

1.4.1 Dynamix DW-0002/H

Front panel: The LED light provides system message of Dynamix DW-0002/H.



Power : Light on means Dynamix DW-0002/H is power on.

L1-L2 : Light on means the line is in use.

Link : Light on means Dynamix DW-0002/H is connected to the network correctly.

Act : LED should be light on and in flash display when data is transmitting.

Ready : 1. Light on and in slow flash means Dynamix DW-0002/H is in operation mode.

Status : 1. Light on means Dynamix DW-0002/H successfully

- registered to Gatekeeper when it is set as Gatekeeper Mode.
2. LED flash means Dynamix DW-0002/H is not registered to Gatekeeper when it is set as Gatekeeper Mode.
 3. Or when Dynamix DW-0002/H is in downloading mode, LED should be flash as well.
 4. Light off means Dynamix DW-0002/H is in Peer-to-Peer Mode.

Back panel:



1.4.2 Dynamix DW-0004/H

Front panel: The LED light provides system message of FXO GateWay.



Power : Light on means FXO GateWay is power on.

L1-L4 : Light on means the line is in use.

Link : Light on means FXO GateWay is connected to the network correctly.

Act : LED should be light on and in flash display when data is transmitting.

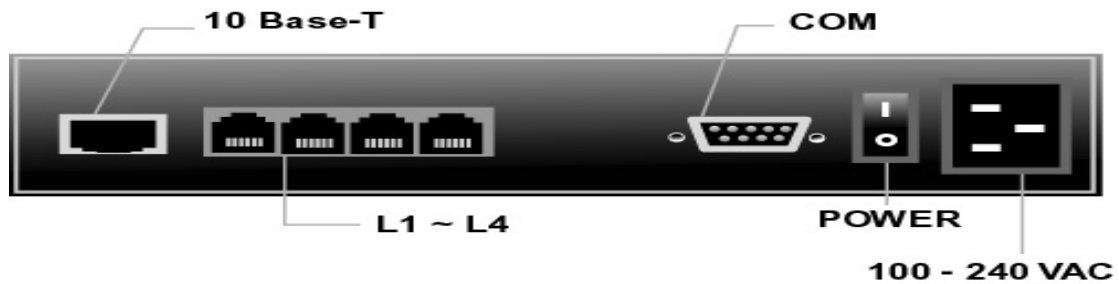
Ready : 1. Light on and in slow flash means FXO GateWay is in operation mode.

Status : 1. Light on means FXO GateWay successfully registered to Gatekeeper when it is set as Gatekeeper Mode.

2. LED flash means FXO GateWay is not registered to

- Gatekeeper when it is set as Gatekeeper Mode.
- 3. Or when FXO GateWay is in downloading mode, LED should be flash as well.
- 4. Light off means FXO GateWay is in Peer-to-Peer Mode.

Back panel:



1.4.3 Dynamix DW-0006/H

Front panel: The LED light provides system message of Dynamix DW-0006/H.



Power : Light on means Dynamix DW-0006/H is power on.

L1-L6 : Light on means the line is in use.

Link : Light on means Dynamix DW-0006/H is connected to the network correctly.

Act : LED should be light on and in flash display when data is transmitting.

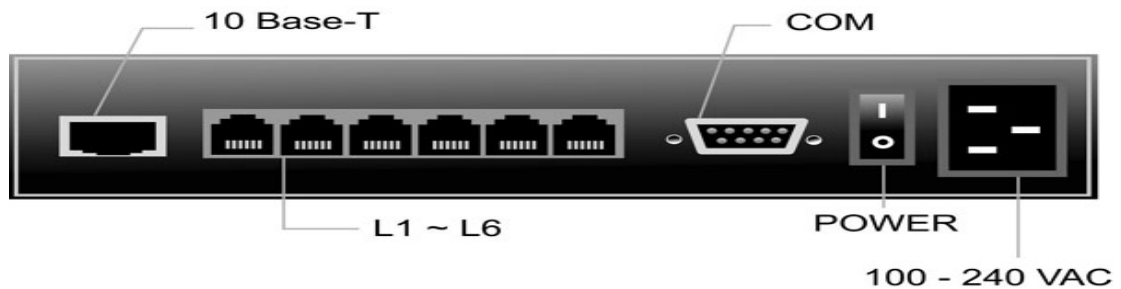
Ready : 1. Light on and in slow flash means Dynamix DW-0006/H is in operation mode.

Status : 1. Light on means Dynamix DW-0006/H successfully registered to Gatekeeper when it is set as Gatekeeper Mode.
 2. LED flash means Dynamix DW-0006/H is not registered to Gatekeeper when it is set as Gatekeeper Mode.
 3. Or when Dynamix DW-0006/H is in downloading mode,

LED should be flash as well.

4. Light off means Dynamix DW-0006/H is in Peer-to-Peer Mode.

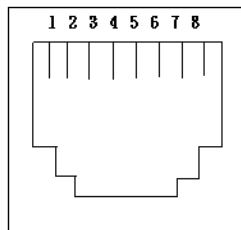
Back panel:



1. Ethernet Port

LAN/WAN: 10/100 Base-T; RJ-45 socket, complied with ETHERNET 10/100base-T.

The pin-out is as following:



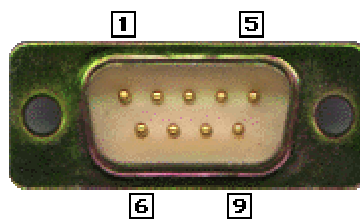
PIN 1, 2: Transmit

PIN 3, 6: Receive




2. COM:

RS232 console port (DB-9pin **male** connector)

Note: use straightforward cable to connect to your computer.



PINOUPS

Pin	Name	Dir	Description
2	RXD		Receive Data
3	TXD		Transmit Data
5	GND		System Ground

3. TEL:

RJ-11 connector, FXS interface is for connecting the analog phone sets or trunk line of PABX.

4. LINE:

RJ-11 connector, FXO interface is for connecting the extension line of PABX or PSTN Line.

5. 12V DC:

Input AC 100V~120V;output DC12V.

2. How to Setup and connect basically

2.1 System Requirement

1. One PC (a) Pentium 100 or above, 64 RAM, Windows 98 or above.
(b) Ethernet card or COM port
2. One standard straightforward RS-232 cable (female connector to Gateway side).
3. PBX extension Lines or PSTN Lines.
4. Software tools (a) Hyper Terminal, TELNET, Web Browser.
(b) Gatekeeper (optional).

2.2 IP Environment Setting

User must prepare a valid IP address, complied with IP Network, for Gateway's proper operation.

For testing the validation of chosen IP address, using the same IP configuration in other PC or Notebook, and then try to connect to Public Internet (go to well-known website, receive Internet mail, or ping a specific public IP address). If it works, use the same IP address and network configuration for Gateway. Please follow up the step for the configuration of your computer or notebook.

2.2.1 For Windows 2000/NT

Please make sure that the network interface of your computer is working fine and the **cross over line** (RJ-45) is connecting with the computer correctly or you could use a **hub** to connect with your computer and this gateway. Turn on your computer and configure the network parameter as follow:

- 1 Go to the **start** menu and enter the **setting** area. Click **control panel**.
- 2 Enter the network configuration.

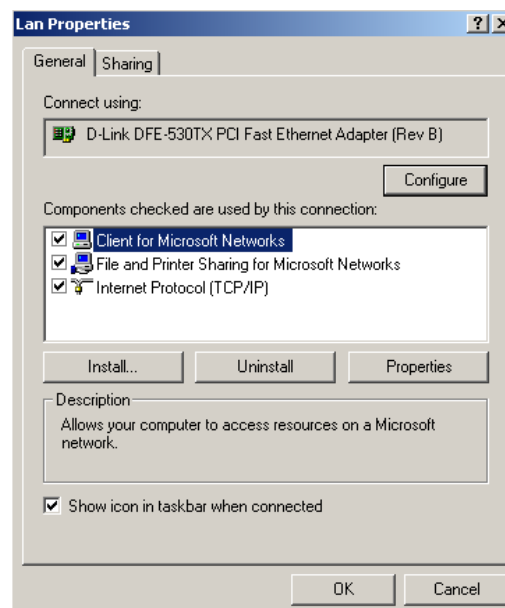


Figure 2.1: Network Configuration

3 Select the **Property** of the LAN card.

4 Setup the ip address, subnet mask and default gateway as below:

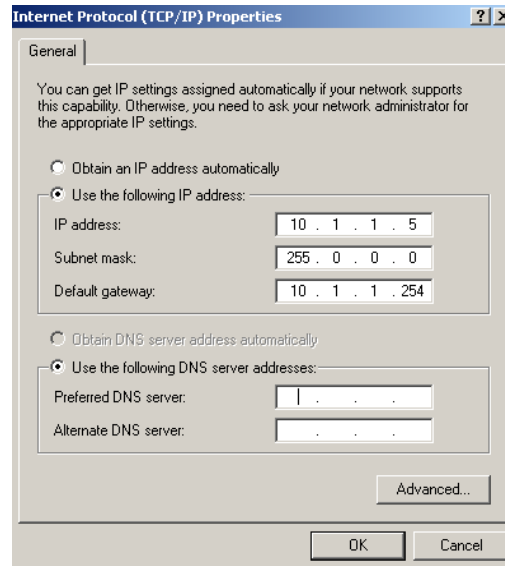


Figure 2.2: Configure the network

5 Click OK after you finished the network setup.

The default ip address, netmask and default gateway address of the gateway is 10.1.1.3, 255.0.0.0, 10.1.1.254.

2.3 Network configurations in your gateway

1 Key in the ip address of the gateway (http://10.1.1.3) with the browser

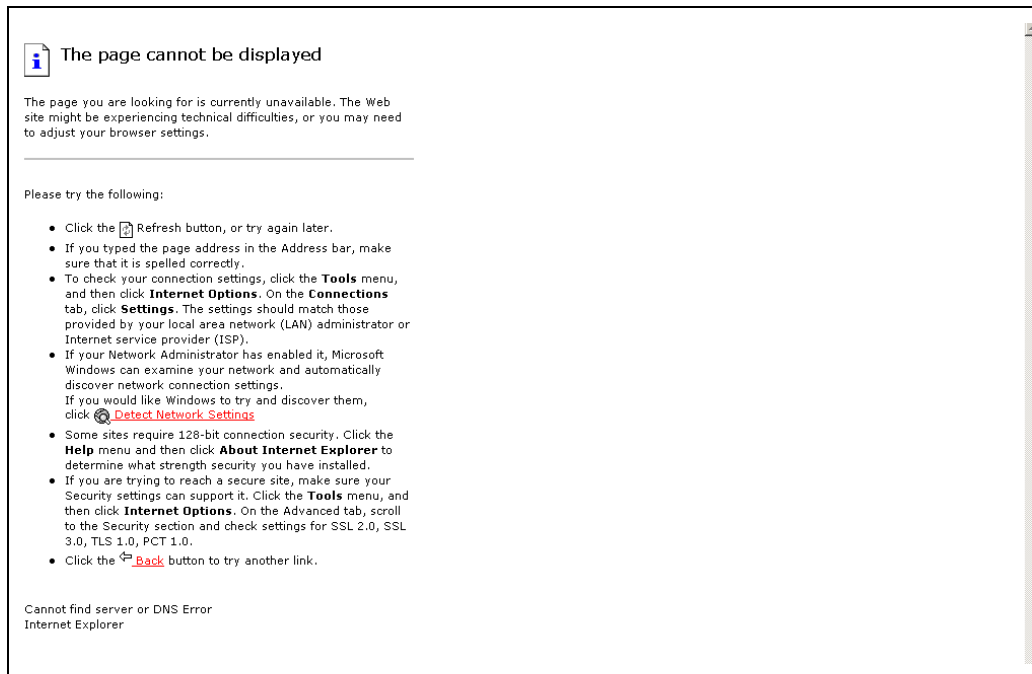


Figure 2.3: WEB Browser

2 After key in the ip address, you have to enter the user name and password to enter the WEB configuration. (Username: root ; No password)

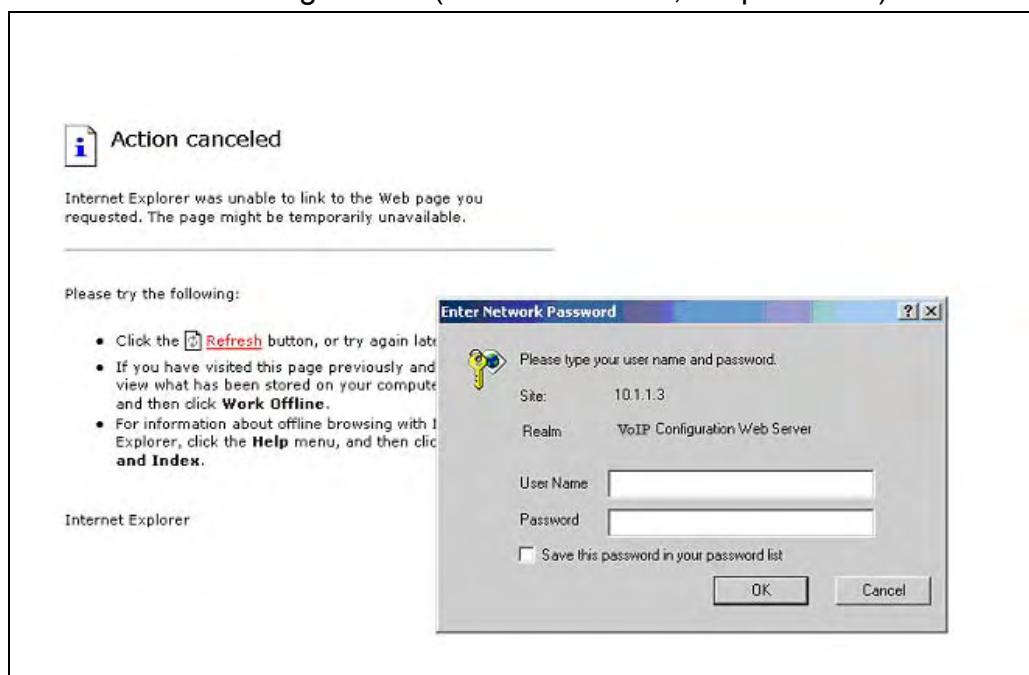


Figure 2.3: Login the username and password

3 You will enter the main page of the configuration after key in the login name and password correctly:

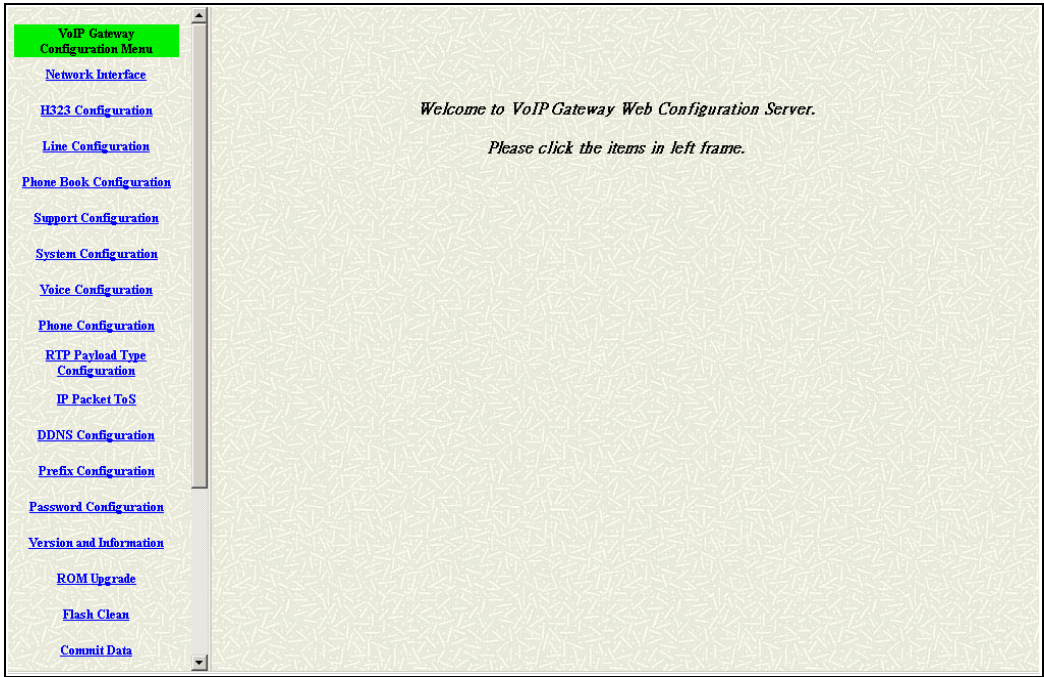


Figure 2.4: The main WEB configuration

4 Press the **Network Interface** to configure the networking of your gateway:

Network Interface	
IP Mode:	<input checked="" type="radio"/> Static <input type="radio"/> DHCP <input type="radio"/> PPPoE
IP Address:	10 . 1 . 1 . 3
Subnet Mask:	255 . 0 . 0 . 0
Default Routing Gateway:	10 . 1 . 1 . 254
NAT function switch:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN Port IP for NAT:	192 . 168 . 123 . 123
DNS primary:	168 . 95 . 1 . 1
DNS secondary:	168 . 95 . 1 . 2
HTTP Port:	80
SNTP:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
SNTP Server Address:	168 . 95 . 195 . 12
GMT:	8
IP Sharing:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
IP Sharing Server Address:	192 . 168 . 14 . 220
IP Change:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
PPPoE User Name:	pppoe
PPPoE Password:	*****

Figure 2.5: The Network Interface

2.3.1 Static ip address

- 1 Please get the correct ip address, netmask and default gateway address from your ISP first. Press the OK button if you finished.

The screenshot shows the 'Network Interface' configuration page in a VoIP Gateway Configuration Menu. The left sidebar lists various configuration options, with 'Network Interface' selected. The main area contains several configuration fields:

- IP Mode:** Static (selected), DHCP, PPPoE
- IP Address:** 210.59.163.160
- Subnet Mask:** 255.255.255.128
- Default Routing Gateway:** 210.59.163.254
- NAT function switch:** Enable, Disable (selected)
- LAN Port IP for NAT:** 192.168.123.123
- DNS primary:** 168.95.1.1
- DNS secondary:** 168.95.1.2
- HTTP Port:** 80
- SNTP:** Enable, Disable (selected)
- SNTP Server Address:** 168.95.195.12
- GMT:** 8
- IP Sharing:** Enable, Disable (selected)
- IP Sharing Server Address:** 192.168.14.220
- IP Change:** Enable, Disable (selected)
- PPPoE User Name:** pppoe
- PPPoE Password:** *****

Figure 2.5: Configure the static ip address

- 2 Press the commit if you finish the configuration.

The screenshot shows the 'Commit Configuration Data' page in the VoIP Gateway Configuration Menu. The left sidebar lists various configuration options, with 'Commit Data' selected. The main area contains a message and a button:

- Message:** It will take few seconds...
- Button:** COMMIT

Figure 2.6: Commit the data

3 Press the reboot if you want the configuration executed.

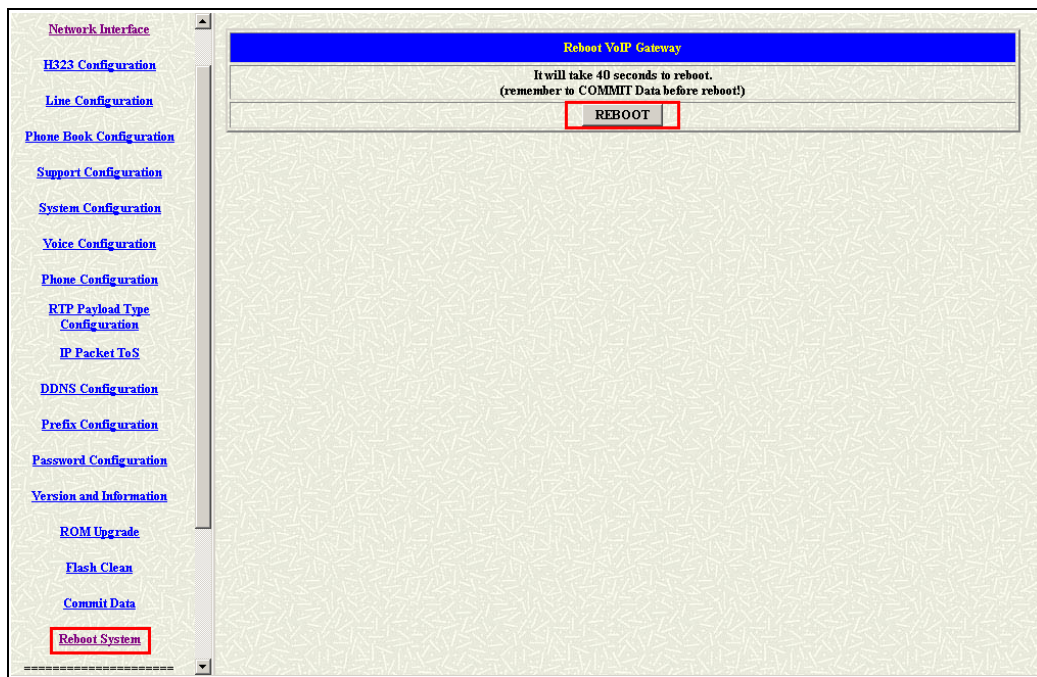


Figure 2.7: Reboot the system

2.3.2 DHCP mode

1 Enable the DHCP if you are using the cable modem or DHCP server.

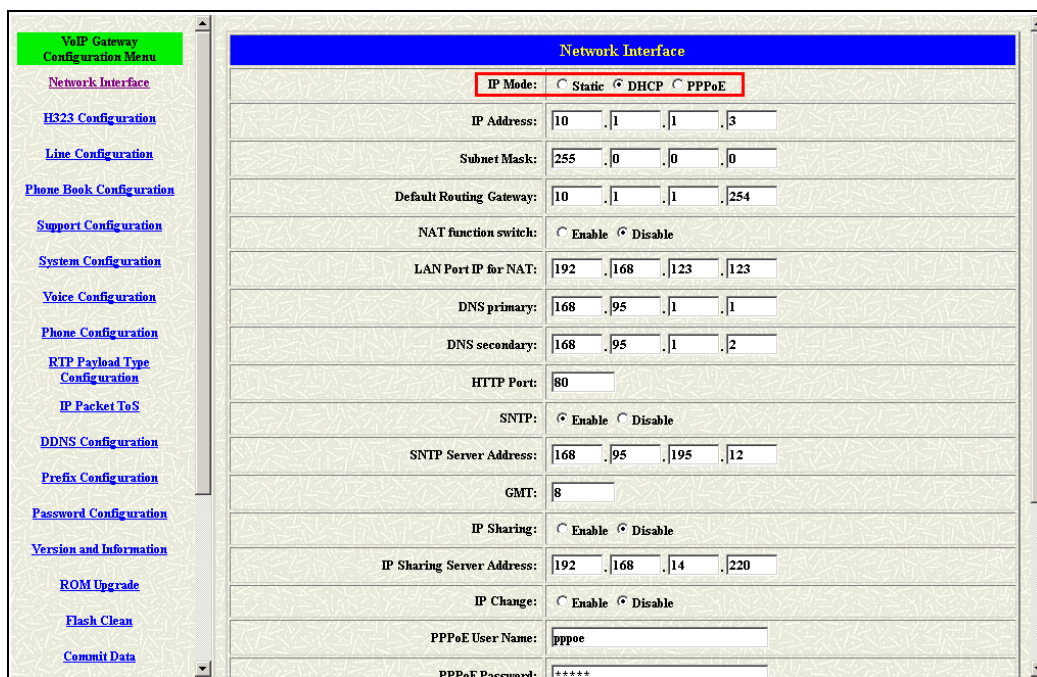


Figure 2.8: Enable the DHCP function

2 Please commit the data and reboot the machine after you enable the DHCP function.

2.3.3 PPPoE mode

1 Enable the PPPoE and press the info about PPPoE configuration in the correct table.

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'Network Interface' highlighted. The main area is titled 'Network Interface' and contains various configuration fields. A red box highlights the 'IP Mode' section, where 'PPPoE' is selected with a radio button. Other visible fields include IP Address (10.1.1.3), Subnet Mask (255.0.0.0), Default Routing Gateway (10.1.1.254), NAT function switch (Disable), LAN Port IP for NAT (192.168.123.123), DNS primary (168.95.1.1), DNS secondary (168.95.1.2), HTTP Port (80), SNTP (Enable), SNTP Server Address (168.95.195.12), GMT (8), IP Sharing (Disable), IP Sharing Server Address (192.168.14.220), IP Change (Disable), PPPoE User Name (pppoe), and PPPoE Password (*****).

Network Interface	
IP Mode:	<input type="radio"/> Static <input type="radio"/> DHCP <input checked="" type="radio"/> PPPoE
IP Address:	10 . 1 . 1 . 3
Subnet Mask:	255 . 0 . 0 . 0
Default Routing Gateway:	10 . 1 . 1 . 254
NAT function switch:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN Port IP for NAT:	192 . 168 . 123 . 123
DNS primary:	168 . 95 . 1 . 1
DNS secondary:	168 . 95 . 1 . 2
HTTP Port:	80
SNTP:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
SNTP Server Address:	168 . 95 . 195 . 12
GMT:	8
IP Sharing:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
IP Sharing Server Address:	192 . 168 . 14 . 220
IP Change:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
PPPoE User Name:	pppoe
PPPoE Password:	*****

Figure 2.9: Switch to PPPoE function

VoIP Gateway Configuration Menu	LAN Port IP for NAT: 192 . 168 . 123 . 123
Network Interface	DNS primary: 168 . 95 . 1 . 1
H323 Configuration	DNS secondary: 168 . 95 . 1 . 2
Line Configuration	HTTP Port: 80
Phone Book Configuration	SNTP: <input checked="" type="radio"/> Enable <input type="radio"/> Disable
Support Configuration	SNTP Server Address: 168 . 95 . 195 . 12
System Configuration	GMT: 8
Voice Configuration	IP Sharing: <input type="radio"/> Enable <input checked="" type="radio"/> Disable
Phone Configuration	IP Sharing Server Address: 192 . 168 . 14 . 220
RTP Payload Type Configuration	IP Change: <input type="radio"/> Enable <input checked="" type="radio"/> Disable
IP Packet ToS	PPPoE User Name: 123@xxnet.net
DDNS Configuration	PPPoE Password: *****
Prefix Configuration	PPPoE IP Address:
Password Configuration	PPPoE Destination:
Version and Information	PPPoE DNS primary:
ROM Upgrade	Reboot After Remote Host Disconnection: <input checked="" type="radio"/> Enable <input type="radio"/> Disable
Flash Clean	OK
Commit Data	

Figure 2.10: Configure the info about PPPoE

- 2 Please commit the data and reboot the machine after you finished the configuration of PPPoE.

2.4 Making a VoIP Call

There are two modes that you could configure the gateway for making VoIP calls. One is the Peer-to-Peer mode, another is GK routed mode. The configurations and functions are different. Please make sure about the mode you want and follow up the step to configure your gateway.

2.4.1 Configure the gateway into the Peer-to-Peer mode

- 1 Enter the H323 Configuration table and change the mode to Peer-to-Peer.

H323 Configuration	
Mode:	<input type="radio"/> GK routed <input checked="" type="radio"/> Peer-to-Peer
Gatekeeper IP:	10.1.1.2
2nd Gatekeeper IP:	10.1.1.2
Default Gateway IP:	x
Gateway Type:	<input checked="" type="radio"/> Gateway <input type="radio"/> Terminal
Registered Prefix:	0
Line1/TEL1 Number:	000
Line2/LINE1 Number:	001
Line3/TEL2 Number:	002
Line4/LINE2 Number:	003
Line5 Number:	nil
Line6 Number:	nil
Registered Alias:	4FXO-00e792
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK

Figure 2.11: Configure the Peer-to-Peer mode

- 2 Press the OK button that is on the bottom of this page to save the configuration.

Registered Alias:	4FXO-00e792
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK
Time To Live (TTL):	60
RTP Port:	16384
Gatekeeper finding port:	1718
Gatekeeper RAS Port:	1719
H225 RAS Port:	1024
H225 Call Signal Port:	1720
Destination H225 Call Signal Port:	1720
Allocate Port Range Start:	2000
Allocate Port Range End:	19999
Response Timeout:	15
Connection Timeout:	60
H235 Security Token:	*
<input type="button" value="OK"/>	

Figure 2.12: The OK button

- 3 Enter the Phone Book configuration table and configure the name, ip address and phone number of the destination.

VoIP Gateway Configuration Menu

- Network Interface
- H323 Configuration
- Line Configuration
- Phone Book Configuration**
- Support Configuration
- System Configuration
- Voice Configuration
- Phone Configuration
- RTP Payload Type Configuration
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade
- Flash Clean
- Commit Data

Phone Book						
Index	Name	E164	IP Address	Port	Drop	Insert

New Record

Index	Name	E164	IP Address	Port	Drop Prefix	Insert Prefix
					<input checked="" type="radio"/> Disable <input type="radio"/> Enable	

Figure 2.11: Phone Book

□Example□

VoIP Gateway Configuration Menu

- Network Interface
- H323 Configuration
- Line Configuration
- Phone Book Configuration**
- Support Configuration
- System Configuration
- Voice Configuration
- Phone Configuration
- RTP Payload Type Configuration
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade
- Flash Clean
- Commit Data

Phone Book						
Index	Name	E164	IP Address	Port	Drop	Insert
1	test	123	10.1.1.100		<input checked="" type="radio"/> Disable <input type="radio"/> Enable	

New Record

Index	Name	E164	IP Address	Port	Drop Prefix	Insert Prefix
					<input checked="" type="radio"/> Disable <input type="radio"/> Enable	

Figure 2.12: The example of Phone Book configuration

This is the first record of Phone Book. So the index is **1**

The name of the destination: **test**

The E164 number (phone number) of the destination: **123**

The ip address of the destination: **10.1.1.100**

- 4 Press the “Add Data” button when you finished, and the new table will display on the first index if you press the Phone Book configuration button.

The screenshot shows the 'VoIP Gateway Configuration Menu' on the left sidebar. The main content area is titled 'Phone Book' and contains a table with the following data:

Index	Name	E164	IP Address	Port	Drop	Insert
1	test	123	10.1.1.100	1720	Disable	

Below the table is a 'New Record' form with the following fields:

Index	Name	E164	IP Address	Port	Drop Prefix	Insert Prefix
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>

At the bottom of the form are two buttons: 'Add Data' and 'Delete Data'.

Figure 2.13: To show the Phone Book record

- 5 Please Commit it and Reboot the system if the configuration is finished.

Please make sure about that the FXO port was connected with the PSTN line or the extension line of the PABX before you start to make a voip call.

2.4.2 Configure the gateway into the GK routed mode

- 1 Enter the H323 Configuration table and change the mode from Peer-to-Peer to GK routed. To change the GK information from your service provider (Ex: The Gatekeeper IP, Registered Prefix and Registered Alias).

VoIP Gateway Configuration Menu

- Network Interface**
- H323 Configuration**
- Line Configuration**
- Phone Book Configuration**
- Support Configuration**
- System Configuration**
- Voice Configuration**
- Phone Configuration**
- RTP Payload Type Configuration**
- IP Packet ToS**
- DDNS Configuration**
- Prefix Configuration**
- Password Configuration**
- Version and Information**
- ROM Upgrade**
- Flash Clean**
- Commit Data**

H323 Configuration

Mode:	<input checked="" type="radio"/> GK routed <input type="radio"/> Peer-to-Peer
Gatekeeper IP:	10.1.1.250
2nd Gatekeeper IP:	10.1.1.250
Default Gateway IP:	x
Gateway Type:	<input checked="" type="radio"/> Gateway <input type="radio"/> Terminal
Registered Prefix:	100
Line1/TEL1 Number:	1001
Line2/LINE1 Number:	1002
Line3/TEL2 Number:	1003
Line4/LINE2 Number:	1004
Line5 Number:	nil
Line6 Number:	nil
Registered Alias:	test
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK

Figure 2.14: Configure the GK info

- 2 Press the OK button that is on the bottom of this page to save the configuration.

VoIP Gateway Configuration Menu

- Network Interface**
- H323 Configuration**
- Line Configuration**
- Phone Book Configuration**
- Support Configuration**
- System Configuration**
- Voice Configuration**
- Phone Configuration**
- RTP Payload Type Configuration**
- IP Packet ToS**
- DDNS Configuration**
- Prefix Configuration**
- Password Configuration**
- Version and Information**
- ROM Upgrade**
- Flash Clean**
- Commit Data**

H323 Configuration

Registered Alias:	test
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK
Time To Live (TTL):	60
RTP Port:	16384
Gatekeeper finding port:	1718
Gatekeeper RAS Port:	1719
H225 RAS Port:	1024
H225 Call Signal Port:	1720
Destination H225 Call Signal Port:	1720
Allocate Port Range Start:	2000
Allocate Port Range End:	19999
Response Timeout:	15
Connection Timeout:	60
H.235 Security Token:	*

OK

Figure 2.15: Press OK to save the data

- 3 Press the Commit Data and Reboot System buttons when you finished the configuration.

2.4.2.1 The type in GK routed mode

There are two types in the GK routed mode you could choose. One is Gateway type and another is Terminal type. There are some different functions, applications and configurations between the Gateway type and Terminal type. In FXO series gateway, the difference between the Gateway and Terminal type is for registering on the Cisco GK. The Terminal type is needed if the endpoints want to register on the Cisco GK successfully. But all the configuration and function is the same if you set the gateway in Gateway or Terminal type. Another difference is for the one-stage-dialing function. Only the gateway type could support the one-stage-dialing function.

3. Advance Configurations

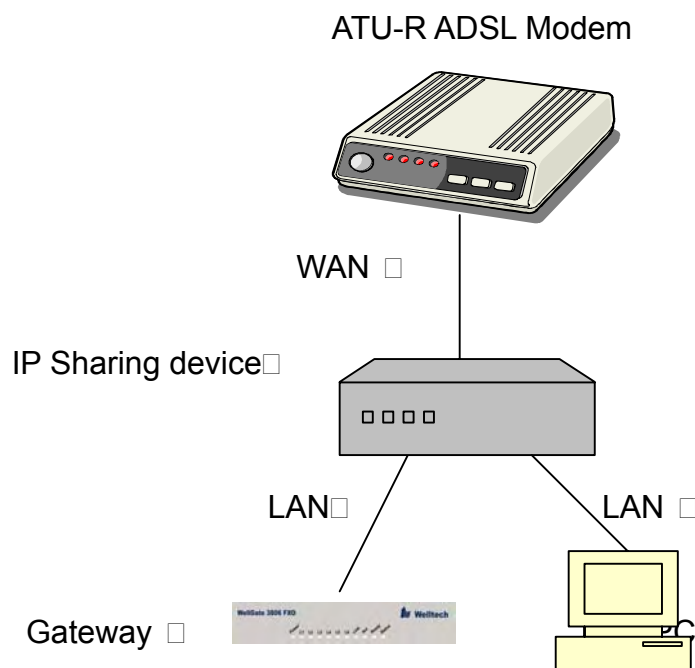
There are too many advanced commands for the advanced users. The following chapters are based on the application layer. Please get the info what you need. If you need the command, please watching the chapter of Command Line Interface.

3.1 IP Sharing

The function is only for the user who is using the IP Sharing device. It is said Gateway is connected to the IP Sharing device.

The IP Sharing Device must support the DMZ or Virtual server functions

An example such as ADSL network is in the following.



- ◆ The WAN IP Address obtained from ADSL has two kinds of methods.
One is fixed IP Address, while user applies for one or more fixed IP Addresses.
Another is dynamic IP Address while user applies for dial-up connection way.
- ◆ The LAN IP Address of User's PC can be set as DHCP client in order to

gain a valid one.

- ◆ Another IP Address for Gateway must be set as an fixed one in order for that IP Sharing device pass forwarding the relevant information from WAN to LAN. Besides, a valid IP Address meets the IP Sharing device (LAN site) is the element.
- ◆ Please configure your gateway just like below:

1 Enter the IP address, Netmask and the default gateway in the network table.

Please follow up your IP Sharing device.

The screenshot shows the 'VoIP Gateway Configuration Menu' with a sidebar on the left containing links like 'Network Interface', 'H323 Configuration', 'Line Configuration', etc. The main area is titled 'Network Interface' and contains the following configuration fields:

Network Interface	
IP Mode:	<input checked="" type="radio"/> Static <input type="radio"/> DHCP <input type="radio"/> PPPoE
IP Address:	192 . 168 . 1 . 200
Subnet Mask:	255 . 255 . 255 . 0
Default Routing Gateway:	192 . 168 . 1 . 254
NAT function switch:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN Port IP for NAT:	192 . 168 . 123 . 123
DNS primary:	168 . 95 . 1 . 1
DNS secondary:	168 . 95 . 1 . 2
HTTP Port:	80
SNTP:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
SNTP Server Address:	168 . 95 . 195 . 12
GMT:	8
IP Sharing:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
IP Sharing Server Address:	192 . 168 . 14 . 220
IP Change:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
PPPoE User Name:	pppoe
PPPoE Password:	*****

Figure 3.1: Network configuration

2 Enable the ip sharing function and put the static ip address in the server address table.

VoIP Gateway Configuration Menu

- Network Interface**
- H323 Configuration
- Line Configuration
- Phone Book Configuration
- Support Configuration
- System Configuration
- Voice Configuration
- Phone Configuration
- RTP Payload Type Configuration
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade
- Flash Clean
- Commit Data

Network Interface

IP Mode: ☒ Static ☐ DHCP ☐ PPPoE

IP Address: 192 . 168 . 1 . 200

Subnet Mask: 255 . 255 . 255 . 0

Default Routing Gateway: 192 . 168 . 1 . 254

NAT function switch: ☐ Enable ☒ Disable

LAN Port IP for NAT: 192 . 168 . 123 . 123

DNS primary: 168 . 95 . 1 . 1

DNS secondary: 168 . 95 . 1 . 2

HTTP Port: 80

SNTP: ☒ Enable ☐ Disable

SNTP Server Address: 168 . 95 . 195 . 12

GMT: 8

IP Sharing: ☒ Enable ☐ Disable

IP Sharing Server Address: 218 . 59 . 163 . 157

IP Change: ☐ Enable ☒ Disable

PPPoE User Name: pppoe

PPPoE Password: *****

Figure 3.2: Enable the ip sharing function

- Fixed IP – Please put the ip address of the ip sharing device in the IP Sharing Server Address table.**
- Dynamic IP – Please enable the ip change function and leave the ip sharing server address.**

3 The IP change function is only for the special usage

Phone Configuration

- RTP Payload Type Configuration**
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade

DNS secondary: 168 . 95 . 1 . 2

HTTP Port: 80

SNTP: ☒ Enable ☐ Disable

SNTP Server Address: 168 . 95 . 195 . 12

GMT: 8

IP Sharing: ☒ Enable ☐ Disable

IP Sharing Server Address: 192 . 168 . 14 . 220

IP Change: ☒ Enable ☐ Disable

Figure 3.3: IP Change

- IP Change Function:** The ip address of the IP Sharing Server Address will use what you configured in that table if you disable the IP Change function. It supports the static ip address. If user is using the dynamic ip address, this function has to be enabled.

If the wan port of the ip sharing device is using the dynamic ip address, the gateway couldn't get the ip address if the GK isn't from us. So the ip

change is only support the GK from us.

4 Please Commit it and Reboot the system if the configuration is finished.

**This chapter is focus on the DMZ function of the IP Sharing Device,
Please get another application from our web site.**

3.2 Network Interface

Users have to configure the Network configurations in this page. This gateway will be work while it is connecting with the internet network. Please get more info from the following descriptions. (see figure 3.4)

The screenshot shows a web-based configuration interface for a VoIP Gateway. On the left is a sidebar menu with various configuration options. The main area is titled 'Network Interface' and contains several configuration fields. The 'IP Mode' is set to 'Static'. The 'IP Address' is 10.1.1.3, 'Subnet Mask' is 255.0.0.0, and 'Default Routing Gateway' is 10.1.1.254. The 'NAT function switch' is set to 'Disable'. The 'LAN Port IP for NAT' is 192.168.123.123. The 'DNS primary' is 168.95.1.1 and 'DNS secondary' is 168.95.1.2. The 'HTTP Port' is 80. The 'SNTP' is set to 'Disable'. The 'SNTP Server Address' is 168.95.195.12. The 'GMT' is 8. 'IP Sharing' is set to 'Disable'. The 'IP Sharing Server Address' is 192.168.14.220. The 'IP Change' is set to 'Disable'. The 'PPPoE User Name' is 'pppoe' and the 'PPPoE Password' is masked with asterisks.

Network Interface	
IP Mode:	<input checked="" type="radio"/> Static <input type="radio"/> DHCP <input type="radio"/> PPPoE
IP Address:	10 . 1 . 1 . 3
Subnet Mask:	255 . 0 . 0 . 0
Default Routing Gateway:	10 . 1 . 1 . 254
NAT function switch:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN Port IP for NAT:	192 . 168 . 123 . 123
DNS primary:	168 . 95 . 1 . 1
DNS secondary:	168 . 95 . 1 . 2
HTTP Port:	80
SNTP:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
SNTP Server Address:	168 . 95 . 195 . 12
GMT:	8
IP Sharing:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
IP Sharing Server Address:	192 . 168 . 14 . 220
IP Change:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
PPPoE User Name:	pppoe
PPPoE Password:	*****

Figure 3.4: Network Interface

- ◆ IP Mode – To configure the fixed or dynamic ip address for this unit. Please configure to PPPoE if the ADSL is using the PPPoE type.
- ◆ IP Address – Define the ip address for your networking if it is the fixed ip. Please get this info from your ISP.
- ◆ Subnet Mask – Define the mask address for your networking. Please get this info from your ISP.
- ◆ Default Gateway – Define the default gateway for your networking. Please get this info from your ISP.
- ◆ NAT function switch – To enable or disable the NAT function.
- ◆ LAN port IP for NAT – To configure the lan port ip for the NAT device.
 - The configuration of NAT function and LAN port ip configuration could support the the NAT model only.
- ◆ DNS primary – To configure the first ip address for the DNS server.
- ◆ DNS secondary – To configure the second ip address for the DNS server.
- ◆ HTTP Port – To configure the HTTP port for access this unit from the

remote side.

- ◆ SNTP – Enable the SNTP server registering function if user wants to get the correct time from the Command Line Interface.
- ◆ SNTP Server Address – Enter the correct ip address of the SNTP server or get the incorrect time from the Command Line Interface.
- ◆ GMT – Configuring the time area for the time display in the Command Line Interface.
- ◆ IP Sharing – Enable this function if the gateway is behind the IP sharing device.
- ◆ IP Sharing Server Address – Enter the WAN IP address of the IP sharing device if it is the fixed ip.
- ◆ IP Change – Enable this function if the WAN IP address of the IP sharing device is dynamic address.

The IP change function could support the GK from us only. Please pay more attentions about this function if your IP sharing device is using the dynamic IP address.

- ◆ PPPoE User Name – To configure the user name for the PPPoE connection.
- ◆ PPPoE Password – To configure the password for the PPPoE connection.
- ◆ PPPoE IP Address – In the PPPoE mode, this table will show the ip address that this unit gets from the ISP.
- ◆ PPPoE Destination – In the PPPoE mode, this table will show the default gateway address that this unit gets from the ISP.
- ◆ PPPoE DNS primary – In the PPPoE mode, this table will show the DNS ip address that this unit gets from the ISP.
- ◆ After Remote Host Disconnection – This unit will reboot and re-connect to the ISP

3.3 H323 Information

This WEB page will help user to configure the information about the dial mode, GK information and some TCP/IP port for the communication. Please get more info about this configuration from the below detail descriptions. (see figure 3.5)

H323 Configuration	
Mode:	<input checked="" type="radio"/> GK routed <input type="radio"/> Peer-to-Peer
Gatekeeper IP:	<input type="text" value="10.1.1.2"/>
2nd Gatekeeper IP:	<input type="text" value="10.1.1.2"/>
Default Gateway IP:	<input type="text" value="x"/>
Gateway Type:	<input checked="" type="radio"/> Gateway <input type="radio"/> Terminal
Registered Prefix:	<input type="text" value="0"/>
Line1/TEL1 Number:	<input type="text" value="000"/>
Line2/LINE1 Number:	<input type="text" value="001"/>
Line3/TEL2 Number:	<input type="text" value="002"/>
Line4/LINE2 Number:	<input type="text" value="003"/>
Line5 Number:	<input type="text"/>
Line6 Number:	<input type="text"/>
Registered Alias:	<input type="text" value="4FXO-00e792"/>
Display Information:	<input type="text" value="4FXO"/>
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	<input type="text" value="GK"/>

Figure 3.5: H323 Information

- ◆ Mode – Pick up the calling mode for this gateway.
 - GK routed : Users have to registered on the GK if users picked up this option.
 - Direct : It only supports the peer-to-peer mode and users have to define the phone book for this mode.
- ◆ Gatekeeper IP Address – Enter the GK ip if users pick up the GK routed mode. **Support the GK mode only.**
- ◆ 2nd Gatekeeper IP – Support the secondary GK function. **Support the GK mode only.**
- ◆ Gateway Type – Pick up the type for gateway. **Support the GK mode only.**
 - Gateway : Could support one-stage-dialing function.
 - Terminal : Couldn't support one-stage-dialing function.
- ◆ Registered Prefix – The phone number for the GK registering. **Support the GK mode only.**
- ◆ Line 1/ TEL 1 Number – Configure the number of the first port in this unit.

- ◆ Line 2 / LINE1 Number – Configure the number of the second port in this unit.
- ◆ Line 3 / TEL 2 Number – Configure the number of the third port in this unit.
- ◆ Line 4 / LINE2 Number – Configure the number of the fourth port in this unit.
- ◆ Line 5 Number – Configure the number of the fifth port in this unit.
- ◆ Line 6 Number – Configure the number of the sixth port in this unit.
- ◆ Registered Alias – The name of this gateway for the GK registering.
Support the GK mode only.
- ◆ Display Information – This configuration will change the display name for this unit.
- ◆ Gatekeeper Discovery – Gateway will send the GRQ message and it will register on the GK if it had received the GCF message.

When users enable this function, the GK name is necessary for this. User could enable this function first and define the name of the GK. Gateway will send the GRQ message by broadcast if users define the IP address of GK is 255.255.255.255. If the gateway receive GCF message that's meaning the GK accept the request from gateway, so the gateway could register on that GK successfully who reply the GCF message.

- ◆ Gatekeeper ID – The name of the GK. It has used with the Gatekeeper Discovery function. **Support the GK mode only.**
- ◆ Time To Live(TTL) – The time for the registered confirm. **Support the GK mode only.**
- ◆ RTP Port – The UDP port for the voice sending. RTP ports support a range of the UDP. The line 1 is using UDP(RTP) 16384 and (RTCP) 16385. The line 2 is using UDP(RTP) 16386 and (RTCP) 16386....etc. This configuration is defining the start port for the RTP packets. **Support the GK and Peer-to-Peer mode both.**
- ◆ Gatekeeper finding port – The port for the Gatekeeper Discovering function of this gateway. **Support the GK mode only.**
- ◆ Gatekeeper RAS Port – The GK registering port of this gateway. **Support the GK mode only.**
- ◆ H225 RAS Port – The RAS port of this unit. **Support the GK mode only.**
- ◆ H225 Call Signal Port – The Call Signal port of this unit. **Support the GK mode only.**
- ◆ Destination H225 Call Signal Port – To configure the Call Signal port for the

destination unit. **Support the GK mode only.**

- ◆ Allocate Port Range Start – To configure the beginning of the ports.
- ◆ Allocate Port Range End – To configure the end of the ports.

The port range is for the H245 TCP port. Please info your vendor if you want to configure these ports for using.

- ◆ Response Timeout – The call will be timed out if the call proceeding message didn't received from the remote side. **Support the GK mode only.**
- ◆ Connection Timeout – The call will be timed out if the connect message didn't received from the remote side. **Support the GK mode only.**
- ◆ H235 Security Token – Support the H235 security policy for the GK. **Support the GK mode only.**

3.4 Line Configuration

The Line configuration will show the status of the registrations and the ports. It includes the hunt group, hotline, and no answer forward configuration. Press the Line configuration button to enter configuration table (see figure 3.6)

The screenshot shows a web-based configuration interface for a VoIP Gateway. On the left is a sidebar menu with various configuration options. The main area displays the 'Line Configuration' table, which lists six lines with their respective settings.

Line Number	Type	Hunting Group	Hot Line	No Answer Forward (FXS)	Registration	Status
Line1 / TEL1:	FXO	1	x		Registered	Ready
Line2 /Line1:	FXO	2	x		Registered	Ready
Line3 /TEL2:	FXO	3	x		Registered	Ready
Line4 /Line2:	FXO	4	x		Registered	Ready
Line5:						
Line6:						

Below the table is an 'OK' button.

Figure 3.6: Line Information

- ◆ Type – Just show the interface for this port.
- ◆ Hunt Group –Define the group number of this port. When the port is busy, the call could be transferred to another port in the same group. Only the same type could be configured in the same group.
- ◆ Hotline –Enable or Disable the hotline mode. The hotline mode will be enabled if you enter the hotline number. The default setting is disabled.
- ◆ No Answer Forward –When the port didn't answer the call, this call will be forwarded to the number you configured. This is only for the E164 number or the phone number you want to transfer.

This function is only for the FXS or FXS/FXO model. The FXO model couldn't support this function.

- ◆ Registration –To show the gateway registered on the GK or not. **Support the GK mode only.**
- ◆ Status –To show the port is busy or ready.

3.5 Phone Book Configuration

The Phone Book configuration is only support the gateway in Peer-to-Peer mode. Please refer the chapter 2 about the Peer-to-Peer mode. (see figure 3.7)

Figure 3.7: Phone Book Configuration

- ◆ Index – The list number of the Phone Book.
- ◆ Name – The name for this contact number.
- ◆ E164 – The dialing number for the calling side.
- ◆ IP Address – The destination IP address for this phone number.
- ◆ Port – The call signal port of the destination.
- ◆ Drop Prefix – Support the drop function. Enable is for enable this drop function; Disable is for disable this drop function. The Drop Prefix will drop the E164 number, which you had configured in the E164 table.
- ◆ Insert Prefix – Support the insert digits function.

1. It will be the drop function if user enable the Drop Prefix function and put nothing into the Insert Prefix table.
2. It will be the insert function if user disable the Drop Prefix function and put the digits into the Insert Prefix table.
3. It will be the replace function if user enable the Drop Prefix function and put the digits into the Insert Prefix table.

- ◆ Delete Date – If users want to delete the record from the table, enter the index number first and press this button. The record will be deleted.

3.6 Support Configuration

This gateway support the FAX over IP, fast start function and others function. Please enable or disable these in the Support WEB page. (see figure 3.8)

Support Configuration	
T.38 FAX:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
T.38 FAX ECM:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
T.38 FAX ASN.1:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
FAX Redundancy Depth:	0
Fast Start:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
H.245 Tunneling:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
H.245 Message After Fast Start:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Early H.245:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
H.450 (FXS):	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
OK	

Figure 3.8: Support Configuration

- ◆ T.38 FAX – Enable this function to support the FAX function.
- ◆ T.38 FAX ECM – This function could support the error correction mode during the high-speed function.
- ◆ T.38 FAX ASN.1 Support – Support the ASN.1 function.
- ◆ Fax Redundancy depth – This support function could make the data for the FAX sending for twice. But this will take more bandwidth.
- ◆ Fast Start – Enable this function will support the Fast start function.
- ◆ H.245 Tunneling – Enable or disable the Tunneling support.
- ◆ H.245 Message After Fast Start – Enable or disable this support function.
- ◆ H.245 after faststart – Enable or disable the H.245 after fast start function.
- ◆ Early H.245 – Enable or disable the Early H.245 support function.
- ◆ H.450(FXS) – Support H.450 function.

All the support functions as above have to be supported by the both endpoints. Please make sure about that before you configure these functions. The H450 function only for the FXS model. Please get more info from the FXS manual.

3.7 System Configuration

Figure 3.9: System Configuration

- ◆ Inter Digit Time – The call will be sent out if user didn't enter the digits after this timer.
- ◆ Forward time – It supports the No Answer Forward function. If users configure it for 10, the call will be forwarded when it rings about 10 seconds. From 5 to 65535. **Support the FXS type only.**
- ◆ Keypad Type – User could define the keypad for the DTMF sending.
 - In-Band : The DTMF signal sending by RTP.
 - Out-Band : The DTMF signal sending not by RTP. Including the H.245(Alpha), H.245(Signal), Q.931 and RFC 2833.
- ◆ User Defined Prefix Switch – Select on/off for User defined local zone prefix switch. If user enables prefix function, once user dials out, gateway will automatically add prefix number before number user dialed.
- ◆ User Defined prefix Disable – Disable the defined prefix after press the selected digit (0,1~9, *).
- ◆ User Define prefix – This will be added in the first digits of the numbers that users had dialed. Can also define IP address here in P2P mode, once user press “#”, Gateway will call out this IP address.
- ◆ Codec Select Method – This could support that the codec will follow the MSD (MasterSlaveDetermination) or the caller side.

- Master : Follow the result from the MasterSlaveDetermination.
- Caller : Follow the caller side.

It's only for the special requirement. Please contact with your vendor before you configure this.

- ◆ Local Generate Ring Back Tone(FXS) – To enable or disable the ring back tone generation from the local side. **Support the FXS type only.**
- ◆ Gateway Prefix – To keep or drop the prefix number of this gateway. This only support the Gateway type in the GK routed mode. Please get more detail useful as below:

The gateway could keep or drop the prefix number if the call is coming from the ip side and bring the prefix number of this gateway. The usage of this command is about the one-stage-dialing function. Of course it must work with the Routing table.

Source	Gateway Prefix	Receive	Transfer
10012345	Keep	10012345	10012345
10012345	Drop	10012345	12345

If the incoming call (From IP side) with the number is 10012345, and the prefix number of the destination gateway is 100. The gateway will receive 10012345. But the number it transfer will be 10012345 (Gateway Prefix Keep). The transfer number will be 12345 if the Gateway Prefix function is enabled.

- ◆ End of Dial – To enable or disable the end of dial function. This function key will be the digit “#”.
- ◆ Ring Time(FXO) – It for the ring detection from the PSTN. The ring detection will be failed if users configure it too long.
- ◆ Ring Before Answer(FXO) – This will help the users to answer the calls from PSTN into this gateway quickly. The call will be connected by one time ring if users configure this for 1. From 1 to 10.
- ◆ FXO type – Users could configure all the calls need the 2nd stage dialing or not.
 - Normal : The 1st or 2nd stage dialing will depend on the dialing plan from the users. If user dial the number of the FXO port, that will be the 2nd stage dialing.

- Force 2nd dial : Every calls will need the 2nd stage dialing type.
- ◆ Hardware Type – This will show the hardware detection type. Support the FXS/FXO model only.

3.8 Voice Configuration

Users could configure the voice codec or gain level in this web page.

Please get more detail info from the following description. (see figure 3.10)

VoIP Gateway Configuration Menu

- Network Interface
- H323 Configuration
- Line Configuration
- Phone Book Configuration
- Support Configuration
- System Configuration
- Voice Configuration**
- Phone Configuration
- RTP Payload Type Configuration
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade
- Flash Clean
- Commit Data

Voice Configuration

Codec Priority	1st	2nd	3rd	4th	5th	6th
	G.723.1	G.729	G.729a	G.729b	G.729ab	G.711mu-Law
Frame Size	G.723 60	G.729 60	G.729a 60	G.711u 40	G.711a 40	G.729b 60
Line1/TEL1 Volume:	Voice 28		Input 32		DTMF 23	
Line2/LINE1 Volume:	Voice 28		Input 32		DTMF 23	
Line3/TEL2 Volume:	Voice 28		Input 32		DTMF 23	
Line4/LINE2 Volume:	Voice 28		Input 32		DTMF 23	
Line5 Volume:	Voice 28		Input 32		DTMF 23	
Line6 Volume:	Voice 28		Input 32		DTMF 23	
G.723 Silence Suppression:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable					
Echo Canceller:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable					
Jitter Buffer:	Min. Delay 90		Max. Delay 150			

Figure 3.10: System Configuration

- ◆ **Codec Priority** – This could help users configure the codec priority for using. Please pay more attentions about the firmware you use. If the firmware only support G.729 series codec, the G.723 codec in this table will be useful.
- ◆ **Frame Size** – To configure the packet size for the codec that users want.
- ◆ **G.723 Silence Suppression** – To enable the VAD and CNG function for the G.723 codec.
- ◆ **Line1 (TEL 1) Volume** – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the first FXS port.
- ◆ **Line2 (LINE 1) Volume** – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the first FXO port.
- ◆ **Line3 (TEL 2) Volume** – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the second FXS port.
- ◆ **Line5 Volume** – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the second FXO port.
- ◆ **Line4 (LINE 2) Volume** – To configure the output gain (voice), input gain

(input) and DTMF gain (DTMF) of the second FXO port.

- ◆ Line6 Volume – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the second FXO port.
- ◆ Echo Cancellor – To enable or disable the echo cancellation function.
- ◆ Jitter Buffer – To configure the Min or Max delay for the Jitter Buffer. The min is from 0ms and the max is 150ms.

3.9 Phone Configuration

This WEB will show the tone generation value from this unit. Please don't configure it if you got some correct value for sure. (see figure 3.11)

Phone Configuration								
Ring Cadence:	Frequency		On		Off		Level	
Ring Back Tone:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
Busy Tone:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
Dial Tone:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
2nd Dial Tone:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
Flash Timer:	Low				High			
OK								

Figure 3.11: Phone Configuration

- ◆ Ring Cadence – TO configure the frequency and cadence for the local ring tone. The cadence is for ms.
- ◆ Ring Back Tone – To configure the value of the local ring back tone generation
- ◆ Busy Tone – To configure the value of the local busy tone.
- ◆ Dial Tone – To configure the value of the local dial tone.
- ◆ 2nd Dial Tone – To configure the value of the local 2nd dial tone.
- ◆ Flash Frequency – To configure the High and Low frequency for the Flash sending.

The Phone Configuration support the FXS and FXS/FXO model only. Users will get the empty value in the FXO web configuration.

3.10 RTP Pay Load Type Configuration

There are more types for the RTP Payload. This web page could support users define the Payload Type for some special payload. (see figure 3.12)

RTP Payload Type Configuration	
RFC2833 Payload Type:	96
DTMF Payload Type:	100
FAX Payload Type:	101
FAX ByPass Payload Type:	102
MODEM ByPass Payload Type:	103
Redundancy Payload Type:	104
MODEM Relay Payload Type:	105
<input type="button" value="OK"/>	

Figure 3.12: Pay Load Type Configuration

- ◆ RFC2833 Payload Type – To define the payload type for RFC2833 type.
- ◆ DTMF Payload Type – To define the payload for the DTMF type.
- ◆ FAX Payload Type – To define the payload for the FAX type.
- ◆ FAXByPass Payload type – To define the payload for the FAX by Pass type.
- ◆ MODEMByPass Payload Type –To define the payload for the Modem by Pass type. (This is no use for the hardware as so far.)
- ◆ Redundancy Payload Type – To define the payload for the Redundancy type.
- ◆ MODEMRelay Payload Type – To define the payload for the FAX by Pass type. (This is no use for the hardware as so far.)

Please contact with your vendors if you want to configure these values.

3.11 IP Packet ToS

The Type of Service should be worked with the network router. The router will check all the packets if it support the TOS function. There is a field in the packet for the TOS value. This WEB is for users to configure these values to make the packets with the correct values for the TOS service from the gateway. (see figure 3.13)

The screenshot displays a web-based configuration interface for a VoIP Gateway. On the left is a vertical menu titled 'VoIP Gateway Configuration Menu' with various options: Network Interface, H323 Configuration, Line Configuration, Phone Book Configuration, Support Configuration, System Configuration, Voice Configuration, Phone Configuration, RTP Payload Type Configuration, IP Packet ToS (highlighted in red), DDNS Configuration, Prefix Configuration, Password Configuration, Version and Information, ROM Upgrade, Flash Clean, and Commit Data. The main content area is titled 'IP Packet TOS (Type of Service) Configuration'. It contains two input fields: 'Signalling Packet DSCP Code:' and 'Media Packet DSCP Code:', both with a value of '0'. Below these fields is an 'OK' button.

Figure 3.13: Support Function

According to the RFC 1349 document, the TOS value as following:

- 1000 – minimize delay
- 0100 – maximize throughput
- 0010 – maximize reliability
- 0001 – minimize monetary cost
- 0000 – normal service

These values are the Binary format. Please change to the Decimal and put these values in to the correct table.

3.12 DDNS Configuration

This version of firmware supports DDNS function. Before using this function, please have a DDNS account and some info from your DDNS server. Press the DDNS Configuration button to configure it. (see figure 3.14)

DDNS Device Configuration	
Status:	<input type="radio"/> Enable <input checked="" type="radio"/> Disale
Server:	members.dyndns.org
Host Name:	
ID:	
Password:	
Check IP:	<input type="radio"/> On <input checked="" type="radio"/> Off
IP Check Server 1:	checkip.dyndns.org
IP Check Server 2:	checkip.dyndns.org
Check every:	0 <input type="radio"/> minutes <input type="radio"/> hours <input checked="" type="radio"/> Off
OK	

Figure 3.14: Phone Book

- ◆ Status – To enable or disable this function.
 - ◆ Server – Enter the server address of your DDNS server.
 - ◆ Host Name – Your DDNS address.
 - ◆ ID – Your account.
 - ◆ Password – Your password.
- Please get this info from your DDNS server.
- ◆ Check IP – Enable or Disable the IP Check function.
 - ◆ IP Check Server – Will check the endpoints ip address.
 - ◆ Check Every – The endpoint will check the server after a period.

3.13 Prefix Configuration

The Prefix function is using the drop and insert function (see figure 3.15).

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'Prefix Configuration' selected. The main area is titled 'Prefix Drop/Insert Configuration' and contains a table with four columns: Index, Prefix, Drop, and Insert. Below this table is a 'New Prefix' section with input fields for Index, Prefix, and Insert, and radio buttons for Drop (Enable/Disable). At the bottom of the 'New Prefix' section are 'Add Data' and 'Delete Data' buttons.

Index	Prefix	Drop	Insert

New Prefix			
Index	Prefix	Drop	Insert
<input type="text"/>	<input type="text"/>	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	<input type="text"/>
Add Data		Delete Data	

Figure 3.15: Prefix Configuration

- ◆ Index – The list number of the Phone Book.
- ◆ Prefix – The prefix number of the whole numbers that could be into this gateway
- ◆ Drop – The drop function. Enable this function by the Enable button; Disable this function by the Disable button.
- ◆ Insert – The insert function. Users could enter the digits that you want to insert in this number.
- ◆ Add Data – Press this button if users fill the entire information table above.
- ◆ Delete Date – If users want to delete the record from the table, enter the index number first and press this button. The record will be deleted.

This function is just like the Phone Book configuration. But it will make the drop and insert function in the GK routed mode. All the numbers into this gateway will check out the prefix table first and find out the destination in the Routing Table. There is an example about the configuration, please follow up these steps.

- 1 Press the Prefix Configuration button to enter the configuration table (see figure 3.15)
- 2 Enter the index number. Put the prefix numbers you will dial in the prefix table, enable (disable) the drop function and enter the numbers you want to insert (see figure 3.16)

The screenshot shows the 'VoIP Gateway Configuration Menu' on the left with various options. The main area displays the 'Prefix Drop/Insert Configuration' table and the 'New Prefix' form.

Prefix Drop/Insert Configuration			
Index	Prefix	Drop	Insert

New Prefix			
Index	Prefix	Drop	Insert
1	0	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	886

Buttons: Add Data, Delete Data

Figure 3.16: Configure the Prefix Table

The usage is as same as the drop, insert function of the Phone Book.

Input (Prefix)	Drop	Insert	Output
100	Disable	X	100
200	Disable	0	0200
300	Enable	X	X
400	Enable	500	500

3 Press the Prefix Configuration button to reload the configuration table (see figure 3.17)

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'Prefix Configuration' highlighted. The main content area is titled 'Prefix Drop/Insert Configuration' and contains a table with four columns: Index, Prefix, Drop, and Insert. Below this table is a 'New Prefix' section, which is highlighted with a red border. This section contains a table with the same four columns. The 'Index' column has a value of '1', the 'Prefix' column has a value of '0', the 'Drop' column has radio buttons for 'Enable' and 'Disable' (with 'Disable' selected), and the 'Insert' column has a value of '886'. Below the 'New Prefix' table are two buttons: 'Add Data' and 'Delete Data'.

Prefix Drop/Insert Configuration			
Index	Prefix	Drop	Insert

New Prefix			
Index	Prefix	Drop	Insert
1	0	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	886

Add Data Delete Data

Figure 3.17: Configure the Prefix Table

4 Please Commit it and Reboot the system if the configuration is finished.

3.14 Password Configuration

There are two login accounts in this unit. One is the account root another is administrator. The default setting for these two accounts are empty. Users could define the passwords for these two accounts. Please get more info from the following description. (see figure 3.18)

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'Password Configuration' highlighted in red. The main content area is titled 'Password Configuration' in a blue header. It features a dropdown menu on the left with 'root' selected. To the right of the dropdown are three input fields: 'Current Password:', 'New Password:', and 'Confirm New Password:'. At the bottom of the form are two buttons: 'CHANGE' and 'ABORT'.

Figure 3.18 Password Configuration

- ◆ root – The password for the root account.
- ◆ administrator – The password for the administrator account. This account couldn't upgrade the 2M and boot rom file.
- ◆ Current Password – Enter the original password for the account.
- ◆ New Password – Enter the new password for the account.
- ◆ Confirm New Password – Enter the new password again.
- ◆ Change – This button will make the configurations saved and next time login will need the new password.
- ◆ Abort – Abort the configuration of the password changing.

3.15 Version and Information

Users could get more detail about the software version for all the parts in this web page. (see figure 3.19)

The screenshot displays a web-based configuration interface for a VoIP Gateway. On the left is a vertical menu with various configuration options. The 'Version and Information' option is highlighted in red. The main content area on the right is titled 'Version and Information' in a blue header. It contains a table with seven rows, each representing a different software component and its version.

Version and Information	
Boot Rom:	boot.104
Application Rom:	4fxo.118
DSP Application:	48302ce3.140
DSP Kernel:	48302ck.140
DSP Test Code:	483chitbin
Greetings:	greeting.102
Ask Pin:	askpin.102

Figure 3.19 Password Configuration

- ◆ Boot Rom – The version of the Boot Rom layer.
- ◆ Application Rom – The version of the Application Rom layer.
- ◆ DSP Application – The version of the DSP Application Rom layer.
- ◆ DSP Kernel – The version of the DSP Kernel layer.
- ◆ DSP Test Code – The version of the DSP Test Code layer.
- ◆ Greeting – The version of the Greeting file.
- ◆ ASK Pin – The version of the ASK Pin file.

3.14 ROM Upgrade

User could update the firmware just by the web configuration interface. There are two types for the upgrading procedure. One is using the TFTP server, another is using the FTP server. Please follow the step to update the gateway firmware version. (see figure 3.19)

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'ROM Upgrade' highlighted. The main content area is titled 'ROM Configuration' and contains the following fields:

TFTP/FTP server IP Address:	<input type="text"/>
Target File name:	<input type="text"/>
Method:	<input type="text" value="TFTP"/>
FTP Login:	name <input type="text"/> passwd <input type="text"/>
Target File Type:	<input type="text" value="Application Image"/>
<input type="button" value="OK"/>	

Figure 3.19 ROM Upgrade

- ◆ TFTP/FTP server IP Address – Put the ip address of the TFTP or FTP server in this table.
- ◆ Target File name – Put the target file name in this table.
- ◆ Method – There are two upgrade methods for the upgrade procedure. One is TFTP and another is FTP. Please change to correct method for the upgrading.
- ◆ FTP Login – Please enter the login name and password for the FTP upgrade method. This is necessary if user change the method to the FTP.
- ◆ Target File Type – Please pick up the correct file type for upgrading. If the file name and the file type is unconformable, the upgrade procedure will be failed.
- ◆ OK – Press the OK button if all the info above are correct. The unit will start to download the firmware file from the TFTP or FTP and write to the flash after the downloading.

□ Updating the firmware by the FTP server □

- 1 Pick up the “Rom Upgrade” button to enter the upgrading web page and switch to the FTP method. (see figure 3.20)

The screenshot shows the 'ROM Configuration' web page. On the left is a navigation menu with the following items: VoIP Gateway Configuration Menu, Network Interface, H323 Configuration, Line Configuration, Phone Book Configuration, Support Configuration, System Configuration, Voice Configuration, Phone Configuration, RTP Payload Type Configuration, IP Packet ToS, DDNS Configuration, Prefix Configuration, Password Configuration, Version and Information, ROM Upgrade (highlighted in red), Flash Clean, and Commit Data. The main content area is titled 'ROM Configuration' and contains the following fields: 'TFTP/FTP server IP Address' (four empty boxes), 'Target File name' (empty text box), 'Method' (dropdown menu with 'TFTP' selected), 'FTP Login' (with sub-fields 'name' and 'passwd', both empty), and 'Target File Type' (dropdown menu with 'Application Image' selected). An 'OK' button is at the bottom right.

Figure 3.20 ROM Upgrade for FTP

- 2 Key in the IP address, the login name, password of your FTP server and the correct file name, file type. (see figure 3.21)

This screenshot shows the same 'ROM Configuration' web page as Figure 3.20, but with the fields filled out. The 'TFTP/FTP server IP Address' field contains '210', '59', '163', and '168'. The 'Target File name' field contains '4fx.118'. The 'Method' dropdown menu now shows 'FTP' selected. The 'FTP Login' sub-fields are filled with 'name administrator' and 'passwd *****'. The 'Target File Type' dropdown menu remains 'Application Image'. The 'OK' button is still at the bottom right. A red rectangular box highlights the IP address, target file name, method, and login fields.

Figure 3.21: FTP information

- 3 Press the OK button to start the upgrade procedure.
- 4 Please follow the direction on the web site if the download procedure is finished.

□ Updating the firmware by the TFTP server □

- 1 Downloading the TFTP program from our web site and install it first.
Executing the TFTP program before you want to use the TFTP upgrade method.
- 2 Pick up the “Rom Upgrade” button to enter the upgrading web page and switch to the TFTP method. (see figure 3.22)

The screenshot shows a web interface for ROM Configuration. On the left is a navigation menu with links: VoIP Gateway Configuration Menu, Network Interface, H323 Configuration, Line Configuration, Phone Book Configuration, Support Configuration, System Configuration, Voice Configuration, Phone Configuration, RTP Payload Type Configuration, IP Packet ToS, DDNS Configuration, Prefix Configuration, Password Configuration, Version and Information, ROM Upgrade (highlighted in red), Flash Clean, and Commit Data. The main content area is titled 'ROM Configuration' and contains the following fields: 'TFTP/FTP server IP Address' (a dotted box for IP input), 'Target File name' (a text input field), 'Method' (a dropdown menu with 'TFTP' selected), 'FTP Login' (a dropdown menu with 'FTP' selected and a 'passwd' text input field), and 'Target File Type' (a dropdown menu with 'Application Image' selected). An 'OK' button is located at the bottom right of the form.

Figure 3.22: ROM Upgrade for TFTP

- 3 Key in the IP address of your TFTP server, pick up the file type for your upgrade file and the correct file name for upgrading. (see figure 3.23)

ROM Configuration	
TFTP/FTP server IP Address:	210 . 59 . 163 . 168
Target File name:	2m4fxo.118
Method:	TFTP
FTP Login:	name: passwd:
Target File Type:	2M Boot Image
OK	

Figure 3.23: TFTP information

4 Press the OK button to start the upgrade procedure.

Please pay more attentions on the file name you used. The file name with the prefix “2m” is the complete firmware, it will take more times for the downloading and upgrading. About the file name without the prefix “2m”, it’s only for the application layer firmware. In fact, the latest version firmware is only changed in the application layer.

Please use the flash clean web to make all the configuration back to the default setting if the upgrade procedure was finished.

3.20 Flash Clean

Users could make all the configurations back to the default setting by this button. The password of the account and the networking configuration couldn't be back to the default setting by this command. (see figure 3.24)

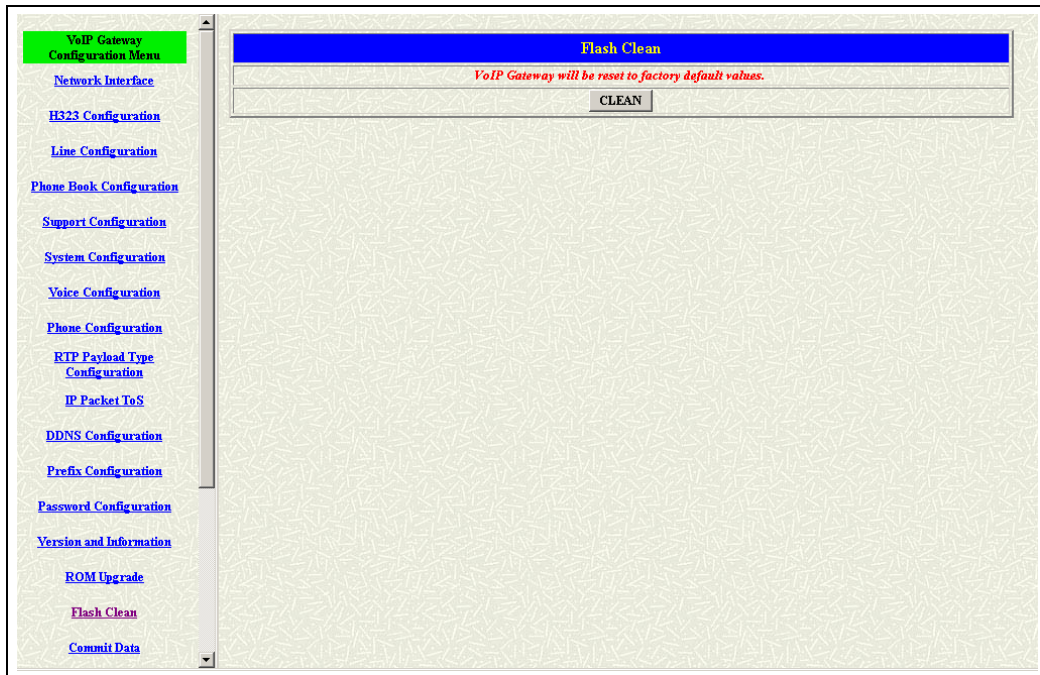


Figure 3.24: Hotline

3.21 Commit

Users could configure the information for the PPPoE connection in this page. After the configurations, the gateway will try to connect the PPPoE server and get the IP address from it. (see figure 3.25)

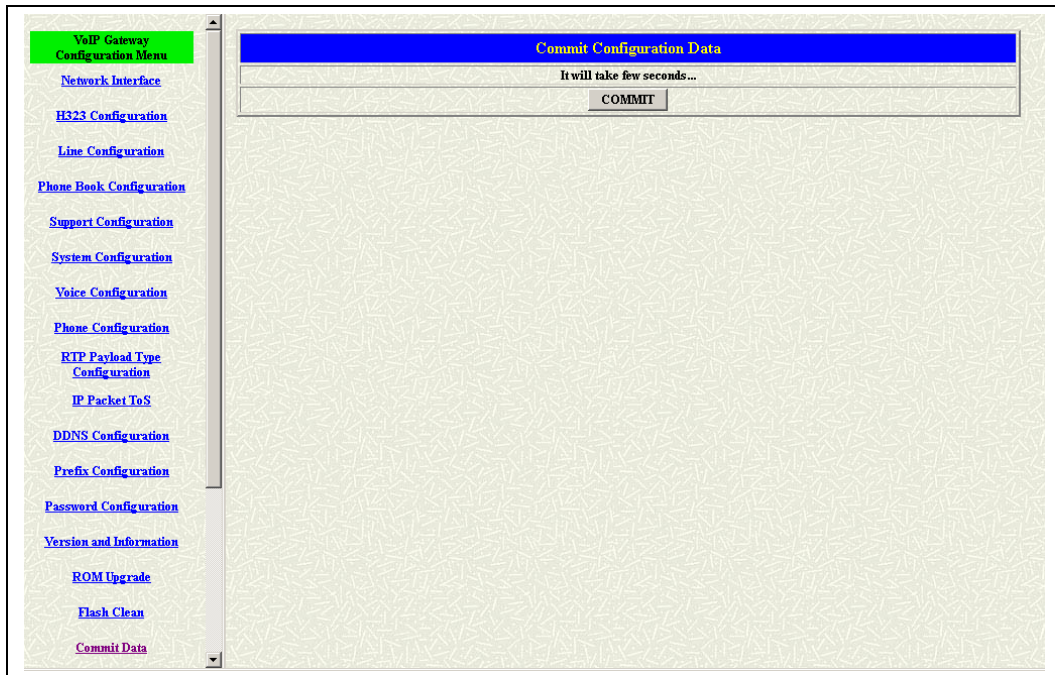


Figure 3.25: PPPoE Setting

3.22 Reboot System

This web page will restart the whole system. This is the necessary step for the changing the configurations and makes it executed. (see figure 3.26)

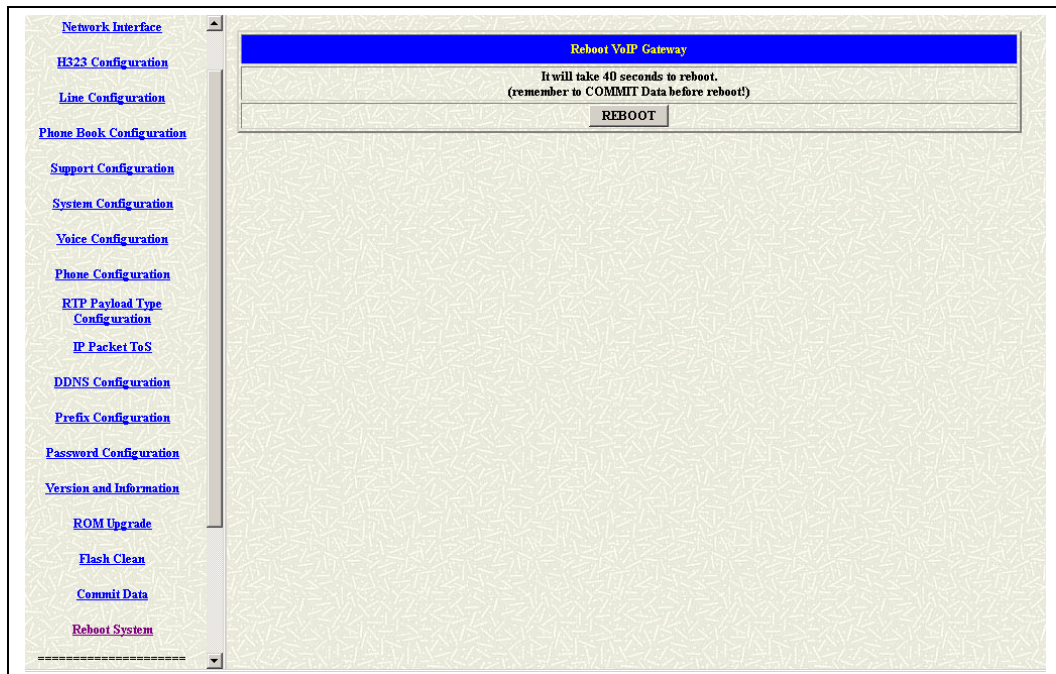


Figure 3.26: Reboot System

3.23 Tone Configuration

Users could configure the tone pattern of the gateway in this page. If the disconnect tone from PSTN side is match the one of the Busy tone table, the call will be dropped. (see figure 3.27)

Tone Configuration								
Disconnect Tone 1:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	620	480	8	8	25	25	0	0
Disconnect Tone 2:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	0	0	0	0	0	0	0	0
Disconnect Tone 3:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	0	0	0	0	0	0	0	0
Disconnect Tone 4:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	0	0	0	0	0	0	0	0
Remote Ring Back Tone 1:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	440	480	1	1	100	200	100	200
Remote Ring Back Tone 2:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	440	480	1	1	100	300	100	300
Remote Ring Back Tone 3:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	440	480	1	1	100	400	100	400
Remote Ring Back Tone 4:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	440	480	1	1	100	200	100	200

OK

Figure 3.27: Tone Configuration

- ◆ Disconnect Tone – To configure the frequency, level gain and on/off time for the busy tone from PSTN side. The busy tone supports 4 tables.
- ◆ Remote Ring Back Tone –To configure the frequency, level gain and on/off time for the ring tone from PSTN side. The gateway won't connect the calls if the ring tone value is incorrect.
- ◆ Dial Tone – To configure the frequency, level gain and on/off time for the dial tone.
- ◆ Ring Back Tone – To configure the frequency, level gain and on/off time for the dial tone.

This WEB Configuration is only support the FXO interface.

3.24 Routing Table

Routing Table is a rule to define the destination of the calls you make. You could define the rules by the number you dial or by the ports. The Routing Table button will show you the configuration table. (see figure 3.28)

In fact, there are three directions of the incoming calls (from IP or FXO side). The explanation of the default routing is as below:

The location with the incoming calls	The location with the destination	The explanation
IP (Default)	Fxo	The destination will be the FXO port when the calls from the IP side without any define rules.
Fxo (Default)	IP	The destination will be the IP side when the calls from the FXO port without any define rules.

The screenshot displays the 'Routing Table Configuration' window. On the left is a sidebar with various configuration links. The main area contains two tables. The top table, 'Routing Table Configuration', has 7 columns: Index, Prefix, Destination, E.164, Min Digits, Max Digits, and Hunt Method. It shows two default entries: 'IP Default' pointing to 'FXO' and 'FXO Default' pointing to 'IP'. The bottom table, 'New Route', is a form for adding new entries with similar columns and radio button options for 'Default' and 'Destination'. At the bottom of the form are buttons for 'Add Data', 'Delete Data', and 'Change Default'.

Figure 3.28: Routing Table

- ◆ Index – The list number of the Route Table.
- ◆ Default – For change the default setting. Users have to pick the direction for the default setting changed.
- ◆ Prefix – The prefix number for the dialed digits. The call will be followed this

route table if the prefix number was matched.

- ◆ Destination – To decide the destination for this route table.
- ◆ E.164 – The E.164 number of the destination.
- ◆ Mini Digits – The mini digits requirement for this route table.
- ◆ Max Digits – The max digits requirement for this route table.
- ◆ Hunt Method – Enable the Hunt Group function and pick up the hunt type.
 - NONE : Disable the Hunt Group function.
 - GROUP : The Hunt Group function will working for the same group.
User could configure the group in the Line Configuration table.
 - ALL : The Hunt Group will working for the same type.

None – Disable this function

Group – The call will search other ports to be the destination with the **same group** if the origin destination is busy.

All – The call will search other ports to be the destination with the **same type** if the origin destination is busy.

About the Group setting, Please get more info from the Line Configuration.

- ◆ Add Data – Add a new record for the route table.
- ◆ Delete Data – Delete a record for the route table.
- ◆ Change Default – Change default route table.

3.24.1 Change the default routing

Please follow up the steps if you want to change the default routing:

- 1 Pick up the side for the incoming calls and define the destination of this side.
Press the Change Default to save the data.

The screenshot shows the 'Routing Table Configuration' interface. On the left is a sidebar with navigation links: System Configuration, Voice Configuration, Phone Configuration, RTP Payload Type Configuration, IP Packet ToS, DDNS Configuration, Prefix Configuration, Password Configuration, Version and Information, ROM Upgrade, Flash Clean, Commit Data, Reboot System, FXO Gateway Only, Tone Configuration, Routing Table (highlighted), and FXO Password. The main area contains two tables. The top table, 'Routing Table Configuration', has columns: Index, Prefix, Destination, E.164, Min Digits, Max Digits, and Hunt Method. It shows 'IP Default' with Destination 'FXO' and 'FXO Default' with Destination 'IP'. The bottom table, 'New Route', has the same columns. Its 'Default' column has radio buttons for FXS, FXO (selected), and IP. Its 'Destination' column has radio buttons for FXS, FXO (selected), and IP. The 'Change Default' button is highlighted with a red box.

Routing Table Configuration						
Index	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
IP Default		FXO	x			
FXO Default		IP	x			

New Route							
Index	Default	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
	<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP		<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP				<input checked="" type="radio"/> NONE <input type="radio"/> GROUP <input type="radio"/> ALL

Figure 3.29: Change The Default Setting

2 The default setting is changed after you press the Change Default button.

Please press the Routing Table button again to show the new setting.

The screenshot shows the same 'Routing Table Configuration' interface. The 'Routing Table Configuration' table now has 'FXO Default' with Destination 'FXO' highlighted with a red box. The 'New Route' table and the 'Change Default' button remain the same as in the previous figure.

Routing Table Configuration						
Index	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
IP Default		FXO	x			
FXO Default		FXO	x			

New Route							
Index	Default	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
	<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP		<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP				<input checked="" type="radio"/> NONE <input type="radio"/> GROUP <input type="radio"/> ALL

Figure 3.30: The Default Setting Changed

3 Please Commit it and Reboot the system if the configuration is finished.

3.24.2 Add a new Routing Table

1 The default setting is changed after you press the Change Default button.

Please press the Routing Table button again to show the new setting.

The screenshot shows the 'Routing Table Configuration' window. On the left is a sidebar with various configuration options. The main area contains a table for routing configurations and a 'New Route' dialog box at the bottom.

Routing Table Configuration

Index	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
IP Default		FXO	x			
FXO Default		IP	x			

New Route

Index	Default	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
1	<input checked="" type="radio"/> FXS <input type="radio"/> FXO <input type="radio"/> IP	8	<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP	1001	1	10	<input type="radio"/> NONE <input type="radio"/> GROUP <input checked="" type="radio"/> ALL

Buttons: Add Data, Delete Data, Change Default

Figure 3.31: Add a new routing table

2 Press Add Data button to save the configuration and press the Routing Table button again to reload the configuration.

The screenshot shows the 'Routing Table Configuration' window after saving the new route. The 'New Route' dialog box is no longer visible, and the routing table has been updated.

Routing Table Configuration

Index	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
IP Default		FXO	x			
FXO Default		IP	x			
1	8	FXO	1001	1	10	ALL

New Route

Index	Default	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
	<input checked="" type="radio"/> FXS <input type="radio"/> FXO <input type="radio"/> IP		<input type="radio"/> FXS <input type="radio"/> FXO <input type="radio"/> IP				<input checked="" type="radio"/> NONE <input type="radio"/> GROUP <input type="radio"/> ALL

Buttons: Add Data, Delete Data, Change Default

Figure 3.32: New Special Routing

The explanation of figure 3.32 is as below:

When the user dial 8 with the first digit of the numbers from FXO or IP side. And the numbers you dial is between 1 and 10 digits. If this call matches the rule, it will be transferred to the FXO port whose E164 number is 1001.

3 Please Commit it and Reboot the system if the configuration is finished.

3.25 FXO Password

You will get the IVR if you make calls from PSTN side or from IP side. The IVR will ask you the password you set, and you could make other calls to IP side or PSTN side if the password you type is correct. Please press the FXO Password button to configure the password (see figure 3.33)

System Configuration

- [System Configuration](#)
- [Voice Configuration](#)
- [Phone Configuration](#)
- [RTP Payload Type Configuration](#)
- [IP Packet ToS](#)
- [DDNS Configuration](#)
- [Prefix Configuration](#)
- [Password Configuration](#)
- [Version and Information](#)
- [ROM Upgrade](#)
- [Flash Clean](#)
- [Commit Data](#)
- [Reboot System](#)
- =====
- [FXO Gateway Only](#)
- [Tone Configuration](#)
- [Routing Table](#)
- [FXO Password](#)
- =====

FXO Password Configuration

Index	Password	Direction

New Password

Index	Password	Direction
<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/> Out <input type="radio"/> In <input type="radio"/> Both
<input type="button" value="Add Data"/> <input type="button" value="Delete Data"/>		

Figure 3.33: FXO Password

- ◆ Index – The number of this table.
- ◆ Password – The password you set.
- ◆ Direction – Playing the IVR to PSTN, IP or both side.
(Out – The calls from IP side ; In – The calls from PSTN side)

4. Command List

4.1 Hyper Terminal Setting

A terminal emulator is needed when using RS-232 port to configure Gateway. There are kinds of terminal emulator software. Here, we use Microsoft HyperTerminal to depict how to set up terminal emulator:

1. Execute the *Hyper Terminal* program, and then the following windows will pop-up on the screen. (START – Program files – Accessories – Communication – Hyper Terminal)

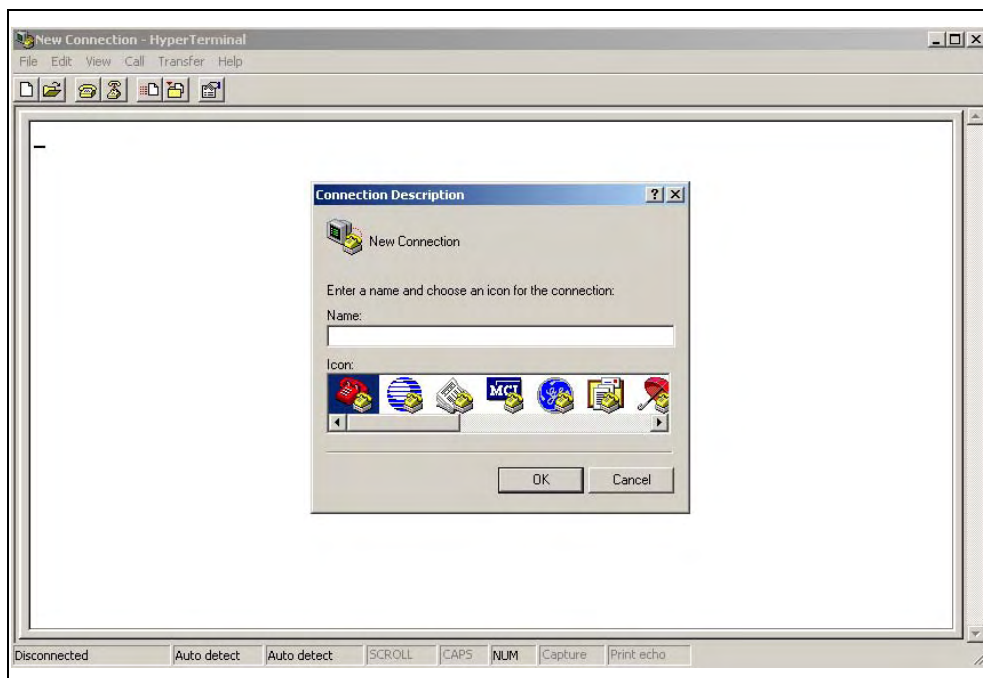


Figure 4.1: Hyper Terminal

2. Define a name such as 'wg38' for this new connection.



Figure 4.2: Edit the name of the connection

3. After pressing OK button, the next window appear, and then choose **COM1/2 Port**, which you are going to use.

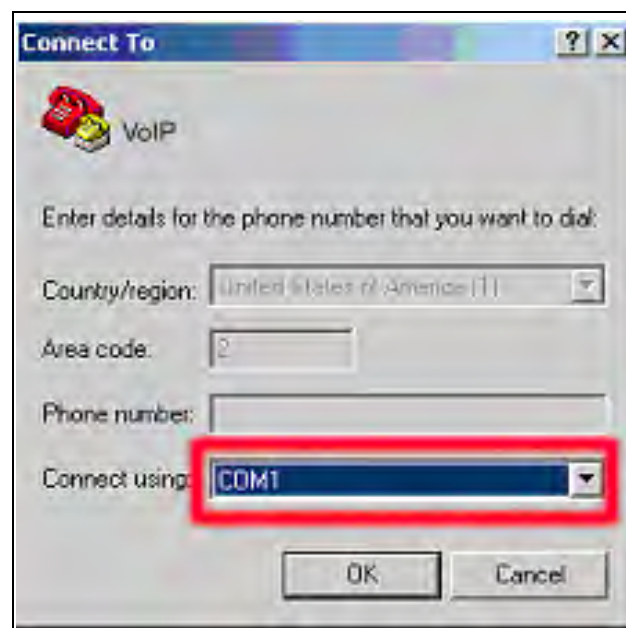


Figure 4.3: Pick up the right interface to use

4. Configure the COM Port Properties as following:
 - ◆ Bits per second: 9600
 - ◆ Flow control: None

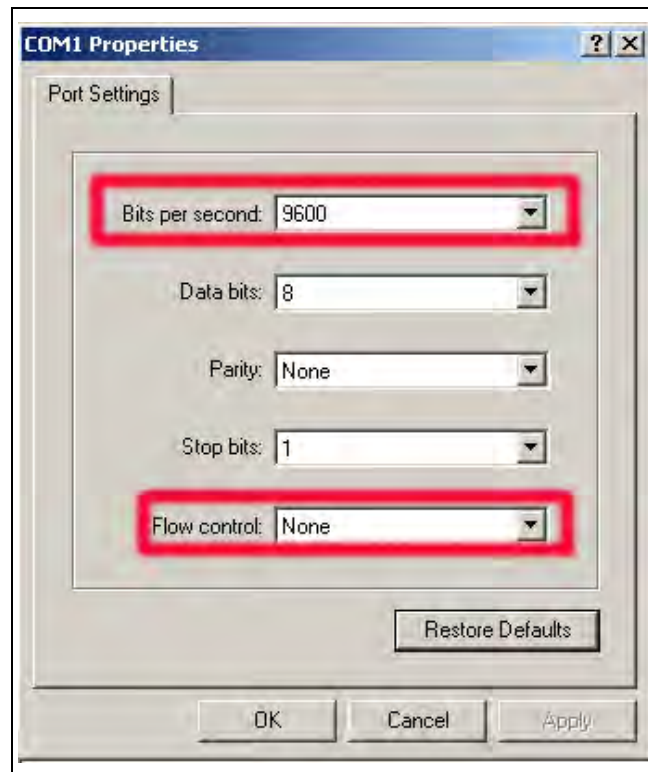


Figure 4.4: Configure the right Bps and control

5. Press 'OK' button, and then start to configure Gateway.

4.2 Command List

4.2.1 [help]

Type **help** or **man** or **?** to list all the available command.

usr/config\$?

help help/man/? [command]

quit quit/exit/close

debug show debug message

reboot reboot local machine

flash clean configuration from flash rom

commit commit flash rom data

ifaddr internet address manipulation

time show current time

ping test that a remote host is reachable

sysconf System information manipulation

h323 H.323 information manipulation

line line information manipulation

prefix Prefix drop/insert information manipulation

pbook Phone book information manipulation

voice Voice information manipulation

support Special Voice function support manipulationh323

route Routing information manipulation

tone Setup of disconnect tone and remote ring back tone

fxopwd Setup of FXO password

record Record voice for greeting and ask pin code

tos IP Packet ToS (Type of Service)values

ddns Dynamic DNS update manipulation

pt DSP payload type configuration and information

rom ROM file update

passwd Password setting information and configuration

usage: help [command]

4.2.2 [quit]

Type **quit** will quit the FXO GateWay configuration mode. And turn back

to login prompt.

```
usr/config$ quit
```

```
Disconnecting...
```

```
login:
```

Note: *It is recommended that type the “quit” command before you leave the console. If so, FXO GateWay will ask password again when next user connects to console port.*

4.2.3 [debug]

Open debug message will show up specific information while FXO GateWay is in operation. After executing the debug command, it should execute command **debug -open** as well. One example is demonstrated below.

```
usr/config$ debug -add h323 vp
```

```
usr/config$ debug -open
```

Parameters Usage:

- | | |
|---------|------------------------------------|
| -status | Display the enabled debug flags. |
| -add | Add debug flag. |
| | -- h323 : h323 related information |
| | -- vp : voice related information |
| -delete | Remove specified debug flag. |
| -open | Start to show debug messages. |
| -close | Stop showing debug messages. |

The debug command was designed for the Technical Engineer. Please contact with your vendor before you are using this command.

4.2.4 [reboot]

After **commit** command, type **reboot** to reload FXO GateWay in new configuration. The procedure is as below:

usr/config\$ reboot

Attached TCP/IP interface to cpm unit 0

Attaching interface lo0...done

AC4804[0] is OK

AC4804[1] is OK

AC4804[2] is OK

Successful

Initialize OSS libraries...OK!

open stack successful

cmInitialize succeed!

GK mode selected.

login:

4.2.5 [flash]

This command will clean the configuration stored in the flash rom and reboot FXO GateWay in factory default setting.

Parameter Usage:

-clean clean all the user-defined value, and reboot FXO GateWay in factory default mode.

Note: It is recommended that use “flash –clean” after application firmware id upgraded.

Warning: Once users execute **flash –clean**, all the configurations of FXO GateWay will be cleaned. This can only be executed by user who log in with **root**

4.2.6 [commit]

Save changes after configuring the FXO GateWay.

```
usr/config$ commit
```

This may take a few seconds, please wait....

Commit to flash memory ok!

```
usr/config$
```

Note: Users should use **commit** to save modified value, or they will not be activated after system reboot.

4.2.7 [ifaddr]

Configure and display FXO GateWay network information.

```
usr/config$ ifaddr
```

LAN information and configuration

Usage:

```
ifaddr [-print]\[-dhcp used]\[-sntp mode [server]]
```

```
ifaddr [-ipsharing used [deviceAddr]]\[-cmcenter ip address]
```

```
ifaddr [-ip ipaddress] [-mask subnetmask] [-gate defaultgateway]
```

- print* *Display LAN information and configuration.*
- mode* *Specify WAN IP mode (0=Static, 1=DHCP, 2=PPPoE)*
- ip* *Specify ip address.*
- mask* *Set Internet subnet mask.*
- gate* *Specify default gateway ip address*
- dns* *Set DNS server IP address. Provide set DNS primary and secondary IP address*
(1=primary IP address, 2=secondary)
- http* *Set HTTP server port.*
- sntp* *Set SNTP server mode and specify IP address.*
- DNS* *Set DNS sever IP address*
- timezone* *Set local timezone.*
- ipsharing* *Specify usage of an IP sharing device and specify IP address.*
- ipchange* *Replace IP address if the shared IP is changed (0=Disable,*
1=Enable)

-id *PPPoE connection user name*
-pwd *PPPoE connection password*
-reboot *Reboot after remote host disconnection in PPPoE mode*
 (0=No Reboot, 1=Yes Reboot)

Note:

Range of ip address setting (0.0.0.0 ~ 255.255.255.255).

Example:

ifaddr -mode 0
ifaddr -ip 210.59.163.202 -mask 255.255.255.0 -gate 210.59.163.254
ifaddr -dns 1 168.92.1.1 -dns 2 168.95.1.2
ifaddr -http 80
ifaddr -sntp 1 210.59.163.254
ifaddr -ipsharing 1 210.59.163.254
ifaddr -ipchange 1
ifaddr -id 123456@hinet.net -pwd 123456 -reboot 1
ifaddr -timezone 8
ifaddr -dns primary secondary

usr/config\$

Parameters Usage:

-print print current IP setting
-mode Define the network mode for this unit.
-ip assign IP address for Gateway
-mask assign internet subnet mask
-gate assign IP default gateway
-dns configure the IP address for the DNS server

usr/config\$ ifaddr -dns 1 123.123.123.123

usr/config\$ ifaddr -dns 2 123.123.123.125

-http Change the http port. User can change default HTTP port (80) to another one for security or NAT application.
-timezone set local time zone according to GMT
-ipsharing Just put the static IP address for the WAN port of the IP sharing if the gateway is behind this IP sharing device.

```
usr/config$ ifaddr -sntp 1 10.1.1.1
```

While 10.1.1.1 stands for SNTP server's IP address.

-ipchange If the unit is behind the IP sharing device and the IP address for the WAN port of that IP sharing is using the dynamic IP address. This function has to be enabled.

```
usr/config$ ifaddr -ipchange 1
```

Please contact with your vendor before you are using the ipsharing and ipchange function.

-id This id is for the user name of the PPPoE usage.
-pwd This password is for the user name of the PPPoE usage.
-reboot If the connection disconnected by the ISP, the unit will reboot and get the ip again.

4.2.8 [time]

When SNTP function of FXO GateWay is enabled and SNTP server can be found as well, type **time** command to show current network time.

```
usr/config$ time
```

```
Current time is THU JUL 01 11:46:01 2004
```

Please make sure about that the SNTP server was configured before you used this command.

4.2.9 [ping]

Use **ping** to test whether a specific IP is reachable or not.
For example: if 192.168.1.2 is not existing while 210.63.15.32 exists. Users will have the following results:

```
usr/config$ ping 210.54.23.129
```

```

PING 210.54.23.129: 56 data bytes
no answer from 210.54.23.129
usr/config$ ping 192.168.4.121
PING 192.168.4.121: 56 data bytes
64 bytes from 192.168.4.121: icmp_seq=0. time=5. ms
64 bytes from 192.168.4.121: icmp_seq=1. time=0. ms
64 bytes from 192.168.4.121: icmp_seq=2. time=0. ms
64 bytes from 192.168.4.121: icmp_seq=3. time=0. ms
----192.168.4.121 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 0/1/5

```

4.2.10 [sysconf]

This command displays system information and configurations.

```

-----
usr/config$ sysconf

```

System information and configuration

Usage:

```

sysconf [-print] [-idtime digit] [-keypad used] [-prefixsw used]
        [-prefixdisab used] [-usrdefprefix digits] [-codec used]
        [-gwprefix used] [-eod used] [-ring on_time off_time] [-rba digit]

```

<i>-print</i>	<i>Display system overall information and configuration.</i>
<i>-idtime</i>	<i>Inter-Digits time (1~10 sec).</i>
<i>-keypad</i>	<i>Select DTMF type: 0=In-band,</i> <i>1=H.245 Alphanumeric,</i> <i>2=H.245 SignalType,</i> <i>3=Q.931 UserInfo.</i> <i>4=RFC2833.</i>
<i>-prefixsw</i>	<i>User defined local zone prefix switch (0=OFF, 1=ON).</i>
<i>-prefixdisab</i>	<i>Local zone prefix disable character (one character</i> <i>from 0~9, *, or NONE('-' key)).</i>
<i>-usrdefprefix</i>	<i>User defined local zone prefix (0 ~ 20 digits).</i>
<i>-codec</i>	<i>Codec select method (0=Caller, 1=Master).</i>

<i>-gwprefix</i>	<i>Drop gateway prefix when call from IP (0=Keep, 1=Drop).</i>
<i>-eod</i>	<i>End of dial (0=Disable, 1=Enable).</i>
<i>-ring</i>	<i>The ring time for ring detection.(Unit:ms)</i>
<i>-rba</i>	<i>Ring before answer.(For 1 ~ 10)</i>
<i>-fxotype</i>	<i>FXO type.(0=Normal, 1=Force 2nd dial)</i>

Example: sysconf -idtime 5

Example: sysconf -ring 500

Parameters Usage:

- print print out all current settings
- idtime set the duration(in second) of two pressed digits in dial mode as timed out. If after the duration user hasn't pressed next number, it will dial out all number pressed. (1-10 seconds)
- keypad DTMF replay type. When value is "0", Gateway will transfer DTMF signal via In-Band type, "1" via H.245 UII Alphanumeric, "2" via H.245 UII Signal Type, and "3" via Q.931 UserInfo, and "4" via RFC2833 type. Users can adjust the value according to various applications.
- prefixsw switch on/off prefix function. If user enables prefix function, once user dials out, gateway will automatically add prefix number before number user dialed.
- prefixdisab set disable key (0,1,~,9, *) to disable the prefix function in this current call. For example, if user has set prefix as 100, and wants to dial out 100123, user can only press 123, to dial out 100123. However, if user wants to dial 123 without prefix, user can press prefix disable key, for example "*", user can press "**", then dial 123, gateway will dial out 123 without adding prefix.
- usrdefprefix define prefix number.

Note: User can also define IP address here in P2P mode, once user press "#", Gateway will call out this IP address.

Note:

"refixsw", "prefixdisab", "usrdefprefix" commands must work together.

- codec set who is the one to determine voice codec during negotiation. 0 is caller will determine the codec, and 1 is mater will determine the codec. (During negotiation 2 endpoints will compare gateway type

level to determine who is master.)

-gwprefix drop or keep gateway prefix . “0” means when gateway has incoming call from IP side, it will not drop prefix before searching for callee number. “1” means when gateway has incoming call from IP side, it will drop prefix before searching for called number.

Note:

1. *If user wants to implement one-stage dialing in FXO Line, this function must be enabled, and user has to dial prefix number (instead of Line number of FXO Line)+ PSTN number to make a call to PSTN side connected with FXO Line.*
2. *After gateway-prefix-drop function is enabled, user must remember to re-configure line number of FXS Line, because line number of FXS Line must remove prefix number. For example, origin line number of FXS line is 1001, prefix is 100, since prefix number will be drop, once gateway has incoming call 1001, after drop gateway prefix 100, it will search line number “1”. So line number must be set as “1”.*

-eod It will transfer the DTMF in “#” if users disable the end of dial function. Users have to press the key pad in “#” if the end of dial function is enable.

-ring ring time for ring detection(in ms). When Gateway has incoming call from PSTN side to FXO port, Gateway will determine it is a ring but not noise only if it is longer than this ring time.

Note:

In Taiwan the ring time of PSTN usually is 1000ms, so if user set ring time longer than 1000ms, FXO port may not be able to pick up the call from PSTN side.

-rba Users could define the ring time if the calls coming from the PSTN side. This support 1 to 10 ring times.

-fxotype It's for the 2nddial function. Any calls will be two-stage-dialing if user enable this function.

4.2.11 [h323]

Phone Book function allows users to define their own numbers, which mapping to real IP address. It is effective only in peer-to-peer mode. When adding a record to Phone Book, users do not have to reboot the machine, and the record will be effective immediately.

usr/config\$ h323

H.323 stack information and configuration

Usage:

*h323 [-print][-mode used][-gk IP address][-algk IP address][-gwtype used]
[-dfgw IP address][-prefix number][-line number][-passwd number]
[-alias h323id][-display information][-gkid ID][-gkdis used]*

<i>-print</i>	<i>Display H.323 stack information and configuration.</i>
<i>-mode</i>	<i>Configure as Gatekeeper mode or Peer-to-Peer mode (0=Gatekeeper, 1=Peer-to-Peer).</i>
<i>-gk</i>	<i>Gatekeeper IP address.</i>
<i>-algk</i>	<i>Second Gatekeeper IP address.</i>
<i>-gwtype</i>	<i>Gateway Type (0=Terminal, 1=Gateway).</i>
<i>-dfgw</i>	<i>Default Gateway IP address.</i>
<i>-prefix</i>	<i>Prefix number.</i>
<i>-line1</i>	<i>Line 1 E.164 number.</i>
<i>-line2</i>	<i>Line 2 E.164 number.</i>
<i>-line3</i>	<i>Line 3 E.164 number.</i>
<i>-line4</i>	<i>Line 4 E.164 number.</i>
<i>-passwd</i>	<i>H.235 security password.</i>
<i>-alias</i>	<i>IP side registered H323 ID.</i>
<i>-display</i>	<i>String representing display information for reporting to the called party.</i>
<i>-gkid</i>	<i>Gatekeeper ID.</i>
<i>-gkdis</i>	<i>Gatekeeper discovery (0=Off, 1=On).</i>
<i>-ttl</i>	<i>RAS TTL time (0~3600 second).</i>
<i>-rtp</i>	<i>RTP port number (1024~65532).</i>

-gkfind Gatekeeper finding port (1024~65535).
-gkras Gatekeeper RAS port (1024~65535).
-h225 H225 ras port (1024~65535).
-q931 H225 call signal port (1024~65535).
-dstq931 Destination H225 call signal port (1024~65535).
-range Dynamically allocated port range (1024~19999).
-respto Max waiting time for 1st response to a new call (1~200).
-connto Max waiting time for call establishment after receiving 1st response of a new call (1~20000).

Note:

Range of IP address setting (0.0.0.0 ~ 255.255.255.255).

Example:

h323 -gk 210.59.163.171 -line1 70 -line2 71 -line3 72 -line4 73
h323 -alias Your_Alias_Name -gkid GK -gkdis 1 -passwd 1234
h323 -range start 1024 end 19999 pbook -add name Test ip 210.59.163.202 e164 1001
pbook -insert 3 name Test ip 210.59.163.202 e164 1001
pbook -delete 3
pbook -search ip 192.168.4.99
pbook -modify 3 name Test ip 210.59.163.202 e164 1001

usr/config\$

Parameter Usages:

-print print current h323 related settings
-mode alternatives for gatekeeper or peer-to-peer mode (0=gatekeeper mode; 1=peer-to-peer mode). If users select gatekeeper mode, a valid gatekeeper is needed when Gateway is in operation.

usr/config\$ h323 -mode 1 (peer to peer mode)

-gk to assign gatekeeper's IP address when Gateway is in gatekeeper mode.
-algk assign second gatekeeper's IP address as redundancy. If Gateway fails to register to main GK for 10 time, it will try to register to alternative GK.
-gwtype gateway type has two kinds, gateway and terminal. Gateway type – device will register as H.323 defined Gateway, user has to

define [prefix] in next command.

Terminal type – device will register as H.323 defined Terminal, [prefix] command is not necessary.

- dfgw default gateway is applied under **Peer-to-Peer mode**. User defines a constant default gateway IP address, then any number dialed if the number is not listed in phone book table will pass forward to this IP Address.
- prefix assign Gateway prefix number, as well as the registered number on the Gatekeeper.
- line1 assign Line1 number.
- line2 assign Line2 number.
- line3 assign Line3 number.
- line4 assign Line4 number.

Note:

User can also set “x” in line number to disable the port. If the port is disabled, it can only receive calls but not calling out.

Note:

1. Line1~Line4 number must follow the prefix number if device is configured as **Gateway Type**. For example, if prefix number is 999, then the line1 & line2's number are 9991 & 9992.
 2. If Gateway is configured as **Terminal Type**, each line will register to GK with it's own number, prefix number is not needed.
 3. **No matter in GK or P2P mode, user only needs to dial line number to reach the local port.** For example, in P2P mode, user wants to dial from FXS TEL1 to FXO Line1, only need to dial number of line2.
-

- passwd set H.235 security password. If user's GK need H.235 security token password to authenticate, user have to input token password in this command. (please refer to your retailer of GK for information about token password if they implement this function in their GK)
- alias H.323 ID. If in gatekeeper mode, this h.323 ID must be different from others who are registering to the same gatekeeper.
- display An addition name for special application if the calling party needs

- this to recognize the called party.
- gkid set GateKeeper name for GateKeeper discovery. When Gateway send out GateKeeper discovery message will search GateKeeper with this GateKeeper name. (please refer to -gkdis)
 - gkdis set auto discovery function on or off. If this function is enabled and IP address of GateKeeper is set as 255.255.255.255, LAN Phone will multicast to search a GateKeeper on network with configured GateKeeper name (please refer to -gkid); if IP address of GateKeeper is set, before LAN Phone register to the assigned GateKeeper, it will send out GRQ(GateKeeper Request) message with configured GateKeeper name to GateKeeper first.
 - ttl to set timer for TTL(Time To Live). Gateway would send RRQ, with keepAlive, to gatekeeper periodically according to TTL timer.
 - rtp to allocate RTP port range—NOT RECOMMENDED. This may be used when RTP port range conflicts with Firewall policy. (each port of Gateway use 2 RTP ports)
 - gkfind gatekeeper finding port. Port number, which Gateway uses it to discover a gatekeeper. Default value is 1718.
 - gkras to set default gatekeeper RAS port number. Default value, 1719, is well-known port for RAS communication.
 - h225 to specify H.225 RAS port number.
 - q931 to specify H.225 signal port number.
 - dstq931 to specify destination H.225 signal port number.
 - range To allocate port range (1500-65535) Gateway may use it.
 - respto Maximum response time out
 - connto Maximum connection time out

Note: From –rtp to –connto commands are for advanced users, please do not change the default settings if not necessary.

4.2.12 [line]

This command is for configure each line parameters of Gateway.

-----u
 sr/config\$ line

Gateway line information and configuration

Usage:

line [-print][-config number [hunt number][hotline number]

line -print Gateway line information.
-config Set Gateway line information.
hunt: Hunting group.
hotline: Hot line configuration.

Example:

line -config 1 hunt 1 hotline 1003

usr/config\$

Parameter Usages:

- print print out all current settings of line
- config determine which line to configure
- hunt set hunting group flag of each line. User can assign different hunt group number represent different hunt group. For example, if user assigns FXS TEL1 as hunt group 1, and FXS TEL2 as hunt group 2, they will be determined as 2 different groups. On the other hand, if user assigns FXS TEL1 as hunt group 1, and FXS TEL2 as hunt group 1 too, when having incoming call to FXS TEL1, which is busy, this call will be route to FXS Line2.

Note: FXO Lines and FXS TELs are treated as 2 different groups, so even they are in the same hunt group, call will only be routed to the same FXS or FXO Lines.

- hotline set hotline table. The Hotline Mode is applied in limited two channels. User just picks up the phone set of one FXS TEL or calls in one FXO line, and gateway will automatically dial out a phone number. In the other hand, user will hear ring back tone or dial tone immediately depended on configurations of destination device.

Note: This function can both work in GK or P2P mode.

GK Mode Usage:

Set gateway under gk mode.

Create a Hotline table with “*line*” command.

usr/config\$ line -config 1 hotline 1001

In this example means: if user calls in FXO Line1, gateway will

automatically dial out “1001”.

P2P Mode Usage:

Set gateway under P2P mode.

Create phone book table with “**pbook**” command.

Create a Hotline table with “**line**” command.

```
usr/config$ pbook -add name test ip 10.1.1.1.e164 1001
```

```
usr/config$ line -config 1 hotline 1001
```

In this example means: if user calls in FXO Line1, gateway will automatically dial out IP address of “1001”.

4.2.13 [prefix]

This command is for make rules for drop or insert prefix digits.

```
usr/config$ prefix
```

Prefix drop/insert information and configuration

Usage:

prefix [-print]

[-add [prefix number][drop used][insert digits]]

[-modify index [prefix number][drop used][insert digits]]

[-delete index number]

prefix -print Display drop/insert information.

-add Add new prefix drop/insert information

prefix : The prefix of dialed number.

drop : Drop prefix (0=Disable, 1=Enable).

insert : 1~10 digits.

-modify Modify prefix drop/insert information

index : The prefix index number record.

prefix : The prefix of dialed number.

drop : Drop prefix (0=Disable, 1=Enable).

insert : 1~10 digits.

-delete Delete prefix index number record.

Example:

```

prefix -print
prefix -add prefix 100 drop 1 insert 2000
prefix -add prefix 100 drop 1
prefix -add prefix 100 drop 0 insert 200
prefix -modify 1 prefix 100 drop 0 insert 300
prefix -delete 1

```

```
usr/config$
```

Parameter Usages:

- add add a rule to drop or insert prefix digits of incoming call. (**prefix –add prefix “prefix number” drop 0/1 insert “insert number”**)
- delete delete a rule to drop or insert prefix digits of incoming call. (**prefix –delete prefix “prefix number”**)
- modify modify a rule to drop or insert prefix digits of incoming call. (**prefix –modify prefix “prefix number” drop 0/1 insert “insert number”**)
- prefix set which prefix number to implement prefix rule.
- drop enable or disable drop function. If this function is enabled, Gateway will drop prefix number on incoming call.
- insert set which digit to insert on incoming call.

4.2.14 [pbook]

Phone Book function allows users to define their own numbers, which mapping to real IP address. It is effective only in peer-to-peer mode. When adding a record to Phone Book, users also **have to reboot** the machine, and the record will be effective immediately.

```
-----u
usr/config$ pbook
```

Phone book information and configuration

Usage:

```

pbook [-print]
      [-add [name string][e164 number][IP address][port number]
        [drop used][insert digits]]
      [-modify number [name string][e164 number][IP address][port number]
        [drop used][insert digits]]

```

[-delete number]

pbook -print *Display phone book information and configuration.*

-add *Add new phone book record.*

name : *1 ~ 10 characters.*

e164 : *1 ~ 10 digits.*

ip : *IP adress.*

port : *1024 ~ 65535.*

drop : *Drop prefix (0=Disable, 1=Enable).*

insert : *1 ~ 10 digits.*

-modify *Modify phone book record.*

name : *1 ~ 10 characters.*

e164 : *1 ~ 10 digits.*

ip : *IP adress.*

port : *1024 ~ 65535.*

drop : *Drop prefix (0=Disable, 1=Enable).*

insert : *1 ~ 10 digits.*

-delete *Delete phone book index record.*

Note:

Range of IP address setting (0.0.0.0~255.255.255.255).

Range of index setting value (1~100).

Example:

pbook -print

pbook -add name test e164 1234 ip 192.168.1.10

pbook -add name test e164 1234 ip 192.168.1.10 port 1720 drop 1 insert 5678

pbook -modify 1 name test e164 5678 ip 192.168.1.10 port 1720 drop 0

pbook -delete 1

usr/config\$

Parameter Usages:

-print print out current contents of Phone Book. (**pbook -print**) Users can also add *index number*, from 1 to 100, to the parameter to show specific phone number. (Ex. **pbook -print 1**)

Note: <index number> means the sequence number in phone book. If users do request a specific index number in phone book, Gateway will give each record a automatic

sequence number as index.

-add add a new record to phone book. When adding a record, users have to specify **name**, **ip**, and **e164** number to complete the command.

name name to represent callee.

e164 e.164 number for mapping with IP address of callee

ip ip address of callee

port call signal port number of callee

drop drop e.164 number when dial out. 0 means to keep e.164 number, 1 means to drop e.164 number when dialing out.

insert insert digits.(1~10 digits)

-modify modify an existing record. When using this command, users have to specify the record's index number, and then make the change.

-delete delete a specific record. "pbook -delete 3" means delete **index 3** record.

PhoneBook Rules:

The e164 number defined in phone book will fully carry to destination. It is not just a representative number for destination's IP Address. In other words, user dial this e164 number to reach destination, destination will receive the number and find out if it is matched to its e164, including Line number in some particular device.

4.2.15 [voice]

The voice command is associated with the audio setting information. There are four voice codecs supported by Gateway.

usr/config\$ voice

Voice codec setting information and configuration

Usage:

voice [-print]

[-send [G723 ms] [G729 ms] [G729A ms] [G729B ms] [G729AB ms] [G711U ms] [G711A ms]]

voice [-priority [G723] [G729] [G729A] [G729B] [G729AB] [G711U] [G711A]]

[-volume line [voice level][input level][dtmf level]]
[-nscng [G711U used1][G711A used2][G723 used3]]
[-echo used][-mindelay t1][-maxdelay t2]

- print* *Display voice codec information and configuration.*
- send* *Specify sending packet size.*
 G.723 (30/60/90 ms)
 G.729 (20/40/60/80 ms)
 G.729A (20/40/60/80 ms)
 G.729B (20/40/60/80 ms)
 G.729AB (20/40/60/80 ms)
 G.711U (20/40/60 ms)
 G.711A (20/40/60 ms)
- priority* *Priority preference of installed codecs.*
 G.723
 G.729
 G.729A
 G.729B
 G.729AB
 G.711U
 G.711A
- volume* *Specify the following levels:*
 voice volume (0~63, default: 30),
 input gain (0~63, default: 30),
 dtmf volume (0~31, default: 23),
- nscng* *No sound compression and CNG (G.723.1 only, 0=Off, 1=On).*
- echo* *Setting of echo canceller. (0=Off, 1=On, per port basis).*
- mindelay* *Setting of jitter buffer min delay. (0~150, default: 90).*
- maxdelay* *Setting of jitter buffer max delay. (0~150, default: 150).*

Example:

```
voice -send g723 60 g729 60 g729a 60 g729b 60 g729ab 60 g711u 60 g711a 60
voice -volume 1 voice 20 input 32 dtmf 27
voice -echo 1 1 1 1
```

usr/config\$

Parameters Usage:

- print print current voice information and configurations.
- send define packet size for each codec. 20/40/60ms means to send a voice packet per 20/40/60 milliseconds. The smaller the packet size, the shorter the delay time. If network is in good condition, smaller sending packet size is recommended. In this parameter, 20/40/60ms is applicable to G.711u/a law, and G.729/G.729A/G.729B/G.729AB codec, while 30/60ms is applicable to G.723.1 codec.
- priority codec priority while negotiating with other h323 device. This parameter determines the listed sequence in h.245 TCS message. The codec listed in left side has the highest priority when both parties determining final codec. User can also select the particular codec without others.

```
usr/config$ voice -priority g723 (only select this codec)
usr/config$ voice -priority g723 g729 g711u g711a (select four codecs,
and g723 is the first choice)usr/config$ line -config 1 hotline 1001
```

- volume There are three adjustable value. **voice volume** stands for volume, which can be heard from Gateway side; **input gain** stands for volume, which the opposite party hears; **dtmf** volume stands for DTMF volume/level, which sends to its own Line.

Note, level of volume is too high or too low may be result in bad performance while connecting to each other.

- nscng silence suppression and comfort noise generation setting (1 = ON; 0 = OFF). It is applicable to G.723 codec only. An example is demonstrated below:

```
usr/config$ voice -nscng q723 1
```

- echo activate each canceler (1 = ON; 0 = OFF).
- mindelay the minimum jitter buffer size. (Default value= 90 ms)
- maxdelay the minimum jitter buffer size. (Default value= 150 ms)

```
usr/config$ voice -mindelay 90 -maxdelay 150
```

*Note: be sure to know well the application before you change **voice** parameters because this might cause incompatibility.*

4.2.16 [support]

This command provides some extra functions that might be needed by users.

```
usr/config$ support
```

Special Voice function support manipulation

Usage:

```
support [-print][-t38 used][-t38ecm used][-t38asn1 used][-faxrdd digits]
        [-fstart used][-tunnel used][-h245fs used][-earlyh245 used]
        [-h450 used]
```

support -print Display support information and configuration.

```
-t38      T.38(FAX) (0=Disabled, 1=Enabled).
-t38ecm    T.38(FAX) ECM (0=Disabled, 1=Enabled).
-t38asn1   T.38(FAX) ASN.1 support (0=Disabled, 1=Enabled).
-faxrdd    FAX redundancy depth (0 ~ 2).
-fstart    Fast start (0=Disabled, 1=Enabled).
-tunnel    H245 Tunneling (0=Disabled, 1=Enabled).
-h245fs    H245 message after FastStart support (0=Disabled, 1=Enabled).
-earlyh245 EarlyH245 support (0=Disabled, 1=Enabled).
```

Example:

```
support -t38 1
support -t38ecm 1
support -t38asn1 1
support -faxrdd 1
support -fstart 1
support -tunnel 1
support -h245fs 1
support -earlyh245 1
```

```
usr/config$
```

Parameter Usages:

- print print current settings in **support** command.
- t38 to switch ON/OFF (1 = ON; 0 = OFF) T.38 fax ability. When T.38 ability is ON, Gateway will automatically defer codec (G.723 or G.729 series) to T.38 when FAX signal is detected.
- t38ecm to switch ON/OFF (1 = ON; 0 = OFF) T.38 fax Error Correction Mode ability. When high-speed T.38 FAX is running, Gateway will automatically execute ECM function.
- t38asn1 Enable the ASN.1 support with the FAX.
- faxrdd set fax redundancy depth. User can increase FAX redundancy depth when network traffic is heavy. For example, if user set fax redundancy as 2, Gateway will resend fax packets every 2 packets.
- fstart to switch ON/OFF (1 = ON; 0 = OFF) fstartStart function. Fast Start function can shorten the connection time if the opposite party also supports fastStart.
- tunnel to switch ON/OFF (1 = ON; 0 = OFF) H.245 tunneling function. If the function is ON, Gateway will send H.245 (Call Control messages) via H.225's (Call Signal messages) link. The function is effective only when both sides support H.245 tunnel.
- h245fs If the function is ON, Gateway can send H.245 messages after FastStart.
- earlyh245 enable/disable early H.245 function. The function is effective only when both sides support early H.245.

Note: it is not recommended to change the value in this command, only if users do know well the application. This might cause incompatibility with other devices.

4.2.17 [sysinfo]

Show the status of the port and registrations

usr/config\$ sysinfo

System information

Index Registration Status

```
=====
1    OK      Ready
2    OK      Ready
3    OK      Ready
4    OK      Ready
usr/config$
```

4.2.18 [route]

This command is to set routing table for Gateway.

```
usr/config$ route
```

Routing table information and configuration

Usage:

route [-print]

```
[-add [prefix number][dst number][e164 number][min number]
[max number][hunt number]][-delete index]
[-modify [index][prefix number][dst number][e164 number]
[min number][max number][hunt number]
[-ip [dst number][e164 number]][-fxo [dst number][e164 number]]]
```

route -print *Display routing table information.*

-add *Add new routing table record.*

prefix *The prefix of dialed number.*

dst *Destination port(1=FXO, 2=IP).*

e164 *Destination e164 number(when destination is FXO).*

max *Max digits.(0 ~ 255)*

hunt *Hunt method for busy forward(0=NONE, 1=GROUP, 2=ALL).*

-delete *Delete routine table index record.*

-modify *Modify routing table record.*

prefix *The prefix of dialed number.*

dst *Destination port(1=FXO, 2=IP).*

e164 *Destination e164 number(when destination is FXO).*

min *Min digits.(0 ~ 255)*

hunt *Hunt method for busy forward(0=NONE, 1=GROUP, 2=ALL).*

- ip *Change the IP default rule.(1=FXO, 2=IP)*
- fxo *Change the FXO default rule.(1=FXO, 2=IP)*

Example:

```
route -add prefix 100 dst 1 e164 1001 min 1 max 3 hunt 1
route -ip dst 1 e164 1001
route -fxo dst 2 e164 x
route -modify 1 prefix 100 dst 0 e164 1001 min 1 max 3 hunt 1
route -delete 1
```

usr/config\$

Parameter Usages:

- print print out all routing table information
- add add a routing rule in routing table. User can add less than 50 rules.
(***route –add prefix “prefix number” dst “destination port type” e164 “e.164 number of port” min “minimum digits needed” max “maximum digits can’t be exceeded”***)
- delete delete a routing rule in routing table (***route –delete “index of routing rule”***)
- modify modify a routing rule in routing table. (***route –modify “index of routing rule” prefix “prefix number” dst “destination port type” e164 “e.164 number of port” min “minimum digits needed” max “maximum digits can’t be exceeded”***)
- ip create routing table for incoming call from IP side. (***route –ip dst “destination port type” e164 “e.164 number of port”***)
- fxo create routing table for incoming call from FXO Lines. (***route –fxo dst “destination port type” e164 “e.164 number of port”***)
- prefix prefix of dialed number
- dst destination port, 1 means FXO Lines, 2 means IP side, x means no determinate number.
- e164 destination e.164 number. This only need to be set when routed port is FXS TELs or FXO Lines to determine which port will this call be routed to.
- min minimum digits needed.
- max maximum digits needed.
- hunt set hunt method for busy forward. 0 means no hunting, 1 means hunting method follows the rule of [line], 2 means hunting method

is to hunt between all ports in the same type.

Usage Example:

1. route –add prefix 100 dst 1 e164 1001 min 1 max 3 hunt 1

This command means if gateway has incoming call's prefix number is 100, and total digits is between 1 to 3, this call will be routed to FXS TEL 1001, and if TEL 1001 is busy, call will be routed to another FXS TEL.

2. route –fxo dst 1

This command means incoming call from FXO Lines will be routed to FXO side.

Note:

(1) If user doesn't want to determine a specific port to route, e.164 number must set as "x" and the call will be routed to the first port.

(Ex. route –ip dst 1 e164 x)

(2) Default value: Incoming call from FXS and FXO ports will be forward to IP side.

4.2.19 [tone]

This command is basically for FXO ports.

usr/config\$ tone

Disconnect tone and remote ring back tone configuration

Usage:

*tone [-print][[num][freqLo][freqHi][freqLoLev][freqHiLev]
[Tone1ON][Tone1OFF][Tone2ON][Tone2OFF]]*

tone -print Display tone configuration.

num Tone index(1~4=Disconnect tone, 5~8=Remote ring back tone).

freqLo Low frequency.

freqHi High frequency.

freqLoLev Low level frequency.

freqHiLev High level frequency.

Tone1ON .

Tone1OFF .

Tone2ON .

Tone2OFF .

Example:

tone -print

tone 1 480 620 1 1 50 50 1023 1023

usr/config\$

Parameter Usages:

-print show all tone configuration

[num] **tone index. 1~4 is disconnect tone, 5~8 is remote ring back tone.**

For FXO ports Gateway must detect disconnect tone to determine when to disconnect the call, so user must set disconnect tone of PBX or PSTN network connected to FXO ports.

When making a call from FXO ports, there are 2 ways to detect callee has already picked up the call, one is to detect reverse signal, the other is to detect the termination of ring back tone, so user must set ring back tone of PBX or PSTN network.

(If user doesn't know about the frequency of disconnect tone or ring back tone, please refer to **[record]** command to detect frequency.)

For each tone may has 1 set or 2 sets (high and low) of frequencies. If user wants to set 0 in on/off time, please set "1023" represent "0". (ex. **tone 1 620 480 8 8 50 50 1023 1023**)

(tone "index of tone" "frequency of high" "frequency of low" "level of high" "level of low" "on time of high" "off time of high" "on time of low" "off time of low")

4.2.20 [fxopwd]

This command is for FXO ports.

usr/config\$ fxopwd

FXO password information and configuration

Usage:

fxopwd [-print][-add [passwd number][direction number]]

[-modify index [passwd number][direction number]]
[-delete index]

fxopwd -print Display FXO password information and configuration.
-add Add new FXO password record
passwd The password.
direction FXO direction(0=Out, 1=In, 2=Both).
-modify Modify FXO password record
passwd The password.
direction FXO direction(0=Out, 1=In, 2=Both).
-delete Delete index

Example:

fxopwd -add passwd 1234 direction 0
fxopwd -modify 1 passwd 1234 direction 2
fxopwd -delete 1

usr/config\$

Parameter Usages:

-print show all FXO password configuration
-add add 1 set of FXO password
-delete delete 1 specific set of FXO password
-modify modify 1 specific set of FXO password
passwd password
direction the direction number which password implement. 0 means the calls from IP side to PSTN side, 1 means the calls from PSTN side to IP side, 2 means both sides. Once user enables FXO password function, caller will be asked to enter password when call in PSTN side or IP side according to the direction of password being implemented. (***fxopwd -a passwd "password" direction 0/1/2***)

Note:

User can set total 10 sets of password, no matter what the direction is.

4.2.21 [record]

User can record greeting and askpin file and analyze tone frequency by

calling in FXO line of Gateway.

usr/config\$ record

Recoed greeting voice and ask pin code voice, tone analize.

Usage:

record -greeting filename

-askpin filename

-tone

Example:

record -greeting greeting.100

record -askpin askpin.100

record -tone

usr/config\$

Parameter Usages:

-greeting record greeting file. User must assign a file name for greeting,
once record is finished, file recorded will be display in rom –print.

usr/config\$ record -greeting greeting.test

Please off hook the port 1 and press (N) for the next step...

n

Press (R) to start record...

r

Press (S) to stop record...

.....

.....

.....S.....

.....
Press (P) to play the voice or (W) to write to flash or (Q) to quit...

p

w

Please wait a moment...

Write flash ok...

*Boot Rom : boot.104
Application Rom : 3804_0701.bin
DSP App : 48302ce3.140
DSP Kernel : 48302ck.140
DSP Test Code : 483cbit.bin
Greetings : greeting.test
Ask Pin : askpin.102*

q
usr/config\$

-askpin record askpin file. User must assign a file name for askpin file,
once record is finished, file recorded will be display in rom –print.

usr/config\$ record -askpin askpin.test

Please off hook the port 1 and press (N) for the next step...

n

Press (R) to start record...

r

Press (S) to stop record...

.....
.....
.....S.....
.....
.....

Press (P) to play the voice or (W) to write to flash or (Q) to quit...

p

w

Please wait a moment...

Write flash ok...

*Boot Rom : boot.104
Application Rom : 3804_0701.bin
DSP App : 48302ce3.140
DSP Kernel : 48302ck.140
DSP Test Code : 483cbit.bin
Greetings : test.100
Ask Pin : askpin.test*

q

usr/config\$

-tone analyze tone frequency. Gateway can analyze tone frequency as
user provide tone in FXO Line1.

usr/config\$ record -tone

usr/config\$ record -tone

Press (R) to start record...

r

.....
.....
.....
.....
.....

Analizing!! Please wait a moment...

Frequency 1 : 620

Frequency 2 : 474

0.25sec on 0.25sec off

usr/config\$

The Procedures of recording the disconnect tone

Before you start □

Two PSTN lines which connected with the Line 1 and Line 2 port.

Configure Peer-to-Peer mode.

Please record the disconnect tone just follow the stage as below □

1. Please enter the command before you record the disconnect tone□
record -tone
2. Make a call from PSTN side into Line 2 port.
3. You will get a greeting when the call enter the gateway.
4. Please dial the number of the Line 1 port.
5. You will get another dial tone from the PSTN line which was connected with the Line 1 port.
6. Answer the call and make sure the call is connected.
7. Hang up the phone which is from the Line 2 port and you will get the disconnect tone from the Line 1 port.
8. When you get the disconnect tone from the Line 2 port, press <R> and <ENTER> buttons to start recording the disconnect tone.
9. Please hang up the phone if you get the message as below□*Analizing!!*
Please wait a moment...
10. There are three values you will get after analyzing. Please leave the value which is over 1000 Hz, this is not the frequency of disconnect tone.
11. Please put the frequency in the tone table just follow the command□
tone 4 420 680 8 8 25 25 50 50

□Example-1□

(Make a call from PSTN to FXO port)

```
usr/config$ record -tone
```

Press (R) to start record...

(Please make sure that you are already finish the steps 2 ~ 7)

r (Press "Enter" button after you key in "R")

.....

.....
.....
.....

Analizing!! Please wait a moment...

(You could hang up the call from PSTN if you get this message)

Frequency 1 : 481

Frequency 3 : 621

0.25sec on 0.25sec off

tone 4 481 621 8 8 25 25 1023 1023

(Put this value in to the tone table)

tone -print

Disconnect tone 1 parameter

Frequency high : 620

frequency low : 480

frequency high level : 8

frequency low level : 8

Tone1 on : 25

Tone1 off : 25

Tone2 on : 1023

Tone2 off : 1023

Disconnect tone 2 parameter

Frequency high : 450

frequency low : 0

frequency high level : 8

frequency low level : 0

Tone1 on : 35

Tone1 off : 35

Tone2 on : 1023

Tone2 off : 1023

Disconnect tone 3 parameter

Frequency high : 620

frequency low : 480
frequency high level : 8
frequency low level : 8
Tone1 on : 50
Tone1 off : 50
Tone2 on : 1023
Tone2 off : 1023

Disconnect tone 4 paramter

Frequency high : 621
frequency low : 481
frequency high level : 8
frequency low level : 8
Tone1 on : 25
Tone1 off : 25
Tone2 on : 50
Tone2 off : 50

(Confirm the values is correct or not)

(Key in the commit and reboot command if you finish the procedures as above)

Example-2

(Make a call into FXO port)

usr/config\$ record -tone

Press (R) to start record...

(Please make sure that you are already finish the steps 2 ~ 7)

r (Press "Enter" button after you key in "R")

.....
.....
.....
.....

Analizing!! Please wait a moment...

(You could hang up the call from PSTN if you get this message)

Frequency 1 : 473

Frequency 2 (2623) is more than 1000, please ignore it.

0. 25sec on 0.25sec off

tone 4 473 473 8 8 25 25 1023 1023

(Please configure the high and low frequency as the same value if you just get a singal frequency)

tone -print

Disconnect tone 1 paramter

Frequency high	: 620
frequency low	: 480
frequency high level	: 8
frequency low level	: 8
Tone1 on	: 25
Tone1 off	: 25
Tone2 on	: 1023
Tone2 off	: 1023

Disconnect tone 2 paramter

Frequency high	: 450
frequency low	: 0
frequency high level	: 8
frequency low level	: 0
Tone1 on	: 35
Tone1 off	: 35
Tone2 on	: 1023
Tone2 off	: 1023

Disconnect tone 3 paramter

Frequency high	: 620
frequency low	: 480
frequency high level	: 8
frequency low level	: 8
Tone1 on	: 50
Tone1 off	: 50
Tone2 on	: 1023

Tone2 off : 1023

Disconnect tone 4 paramter

Frequency high : 473

frequency low : 473

frequency high level : 8

frequency low level : 8

Tone1 on : 25

Tone1 off : 25

Tone2 on : 50

Tone2 off : 50

(Confirm the values is correct or not)

(Key in the commit and reboot command if you finish the procedures as above)

4.2.22 [ddns]

The dynamic DNS service information and configuration

usr/config\$ ddns

The dynamic DNS service information and configuration

Usage:

*ddns [-print][-enable used][-server Address][-hostname Name][-id Account]
[-passwd Password][-checkip used][-checkipsrv Address][-delay time]
[-force IP]*

<i>ddns -print</i>	<i>Display Dynamic DNS information and configuration.</i>
<i>-enable</i>	<i>Use the dynamic DNS service(0=Disable, 1=Enabled).</i>
<i>-server</i>	<i>Specify DDNS server address.</i>
<i>-hostname</i>	<i>Registered domain name.</i>
<i>-id</i>	<i>Registered account ID.</i>
<i>-passwd</i>	<i>Registered account password.</i>
<i>-checkip</i>	<i>Check the host current IP address(0=Disable, 1=Enabled).</i>
<i>-checkipsrv1</i>	<i>Specify IP address check server.</i>
<i>-checkipsrv2</i>	<i>Specify secondary IP address check server.</i>
<i>-delay</i>	<i>Setting the service delay time (1~59 minutes or 1~24 horus).</i>
<i>-force</i>	<i>Force execute the dynamic DNS service.</i>

Example:

```
ddns -print
ddns -enable 1
ddns -server member.dyndns.org -hostname ipphone.dyndns.org
ddns -delay 30 m (30 minutes)
ddns -delay 12 h (12 hours)
ddns -force 11.22.33.44
```

usr/config\$

Parameter Usages:

-enable enable the DDNS function
-server enter the server address of the DDNS server you use
-hostname enter the domain name address which you get from the DDNS server
-id key in your id
-passwd key in your password
-checkip enable or disable the check current user's ip address
-checkipsv1 enter the ip address of the check server
-checkipsv2 the secondary ip address of the check server
-delay service delay time
-force execute the DDNS function all the times

4.2.21 [pt]

RTP payload type configuration and information

usr/config\$ pt

RTP payload type configuration and information

Usage:

```
pt [-print][-rfc2833 type][-dtmf type][-fax type][-faxbypass type]
  [-modembypass type][-redundancy type][-modemrelayp type]
```

<i>pt -print</i>	<i>Display the RTP payload type information.</i>
<i>-rfc2833</i>	<i>Configure the DTMF RFC2833 payload type.</i>
<i>-dtmf</i>	<i>Configure the DTMF payload type.</i>
<i>-fax</i>	<i>Configure the FAX payload type.</i>

- faxbypass* *Configure the FAX ByPass payload type.*
- modembypass* *Configure the MODEM ByPass payload type.*
- redundancy* *Configure the Redundancy payload type.*
- modemrelay* *Configure the MODEM Relay payload type.*

Example:

pt -rfc2833 96 -fax 101

usr/config\$

4.2.23 [rom]

ROM file information and firmware upgrade function.

usr/config\$ rom

ROM files updating commands

Usage:

rom [-app] [-dsptest] [-dspcore] [-dspapp] [-rbpcm] [-htpcm]

[-greeting] -s TFTP/FTPserver ip -f filename

rom [-method mode] [-ftp username password]

rom -print

-print *show versions of rom files. (optional)*

-app *update main application code(optional)*

-boot *update main boot code(optional)*

-boot2m *update 2M code(optional)*

-dsptest *update DSP testing code(optional)*

-dspcoreupdate *DSP kernel code(optional)*

-dspapp *update DSP application code(optional)*

-rbpcm *update RingBack Tone PCM file(optional)*

-htpcm *update Hold Tone PCM file(optional)*

-greeting *update Greetings PCM file(optional)*

-askpin *update AskPin file(optional)*

-s *IP address of TFTP/FTP server (mandatory)*

-f *file name(mandatory)*

-method *download via TFTP/FTP (TFTP: mode=0, FTP: mode=1)*

-ftp *specify username and password for FTP*

Note:

This command can run select one option in 'app', 'dsptest', 'dspcore',

'dspapp', and 'rbpcm'.

Example:

rom -method 1

rom -ftp vwusr vwusr

rom -app -s 192.168.4.101 -f app.bin

Parameter Usages:

- print show versions of all rom files
- app, boot, dsptest, dspcore, dspappt to update main Application program code, Boot code, DSP testing code, DSP kernel code, or DSP application code.
- boot2m **boot2m** parameter let users to upgrade the whole system flash, including all the firmware that mentioned above. If 2M rom file update is executed, **users have to set again the MAC address of FXO GateWay or it will cause conflict on Ethernet because the original MAC address is erased during 2M ROM file upgrading.**

Note: To set mac address please key in command setmac:(when key in MAC address ,press enter each time after key in two characters):

usr/config\$ setmac

- enter mac address (xxxxxxxxxx):

0001a8002baa

- the mac address is 00 01 a8 00 2b aa

*- if mac address is correct,please press 'y' to
setup configuration,else press 'n' to continue*

y

- greeting The greeting file can be updated by users. The attributes of sound file should complied to: μ -law, 8000 Hz , 8 bit, Mono, 7 kb/s
- askpin update ASKPIN sound file. This is the greeting sound that when asking for pincode.
- s to specify TFTP server's IP address when upgrading ROM files.
- f to specify the target file name, which will replace the old one.
- method to decide using TFTP or FTP as file transfer server. "0" stands for

TFTP, while “1” stands for FTP.

- ftp if users choose FTP in above item, it is necessary to specify pre-defined username and password when upgrading files.

4.2.24 [passwd] command

For security concern, users have to input the password before entering configuration mode.

usr/config\$ passwd

Password setting information and configuration

Usage:

passwd -set Loginname Password

Note:

Loginname can be only 'root' or 'administrator'

Example:

passwd -set root 2fxo

Parameter Usages:

-passwd <login name> <password>

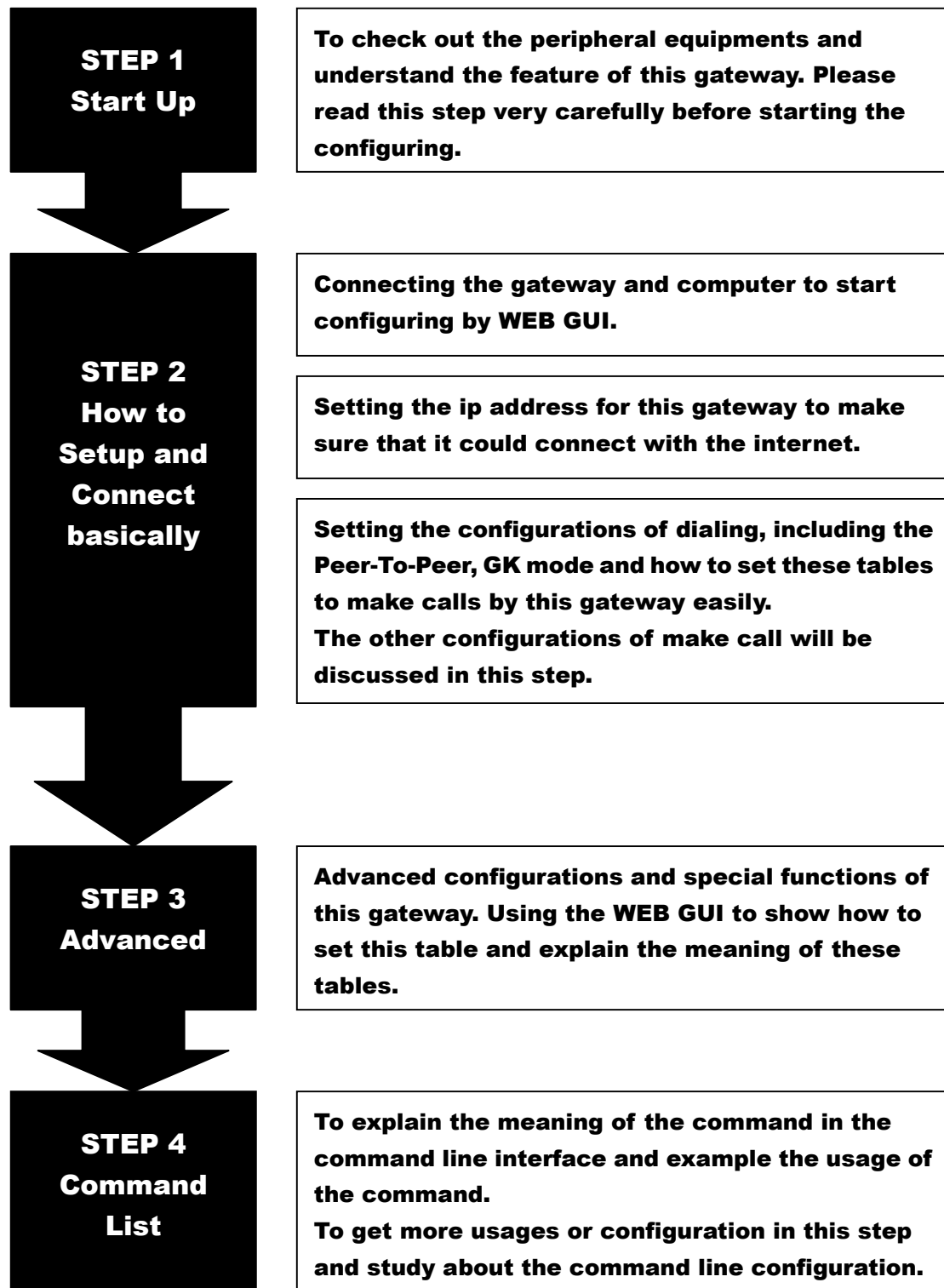
Note: <login name> can be “root” or “administrator” only. “root” and “administrator” have the same authorization, except3 commands that can be executed by “root” only – “passwd –set root”, “rom –boot”, and “flash –clean”

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Steps in configuration



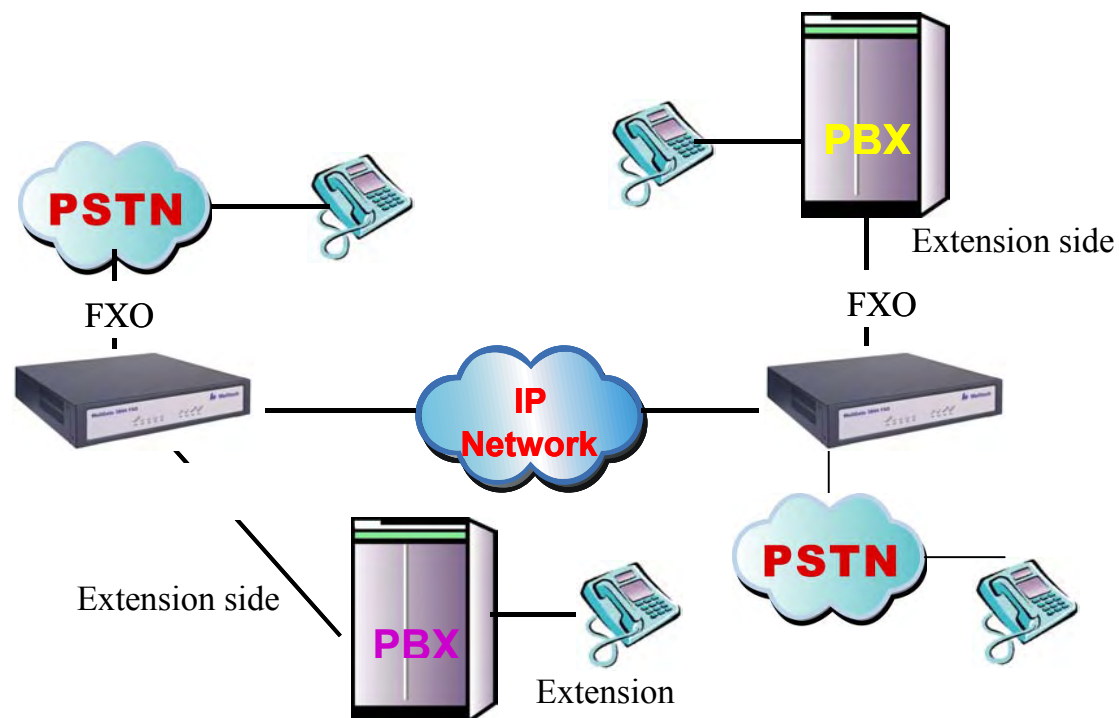
1. Start Up

1.1 Introduction

The FXO gateway provides voice/fax service over IP network with H.323 v3 protocol. By connecting to your existing ADSL or cable modem service, which allows the use of a single, network for voice and fax services with consequent saving in network infrastructure and greatly reduced telephone charges. Ideal solution for providing low cost communications between headquarters and branch offices in the world, as well as for SOHO and office telephony applications.

FXO GateWay provides analog lines to connect local PSTN/PTT interface (FXO), and converts voice/fax signal onto IP network. The management feature is via RS-232C COM port and TELNET.

Application Architecture



- ***FXO ports can connect with PSTN Line or Extension Line of PBX***

1.2 Features and specification

Features

- ITU-T H.323 v4 compliance
- Automatically Gatekeeper Discovery
- Secondary GK support
- Peer-to-Peer mode (non-Gatekeeper)
- Support auto-attendant (2nd dial Tone / Voice greeting)
- Dimensions : 221mm(W)*42mm(H)*217mm(L)
- Line hunting
- 2/4/6 RJ-11 FXO ports
- E.164 (Telephone Number Plan)
- DTMF dialing
- DTMF detection/generation
- TFTP software upgrade
- Remote configuration/reset via Telnet
- LED indication for system status
- LAN interface : One RJ-45 connector of 10Base-T
- Microsoft Netmeeting v3.0 compatible
- Support static IP and DHCP
- QoS by ToS (Type Of Service)
- SNTP (Simple Network Time Protocol)
- Security: Password setting

Audio feature

- Codec -- G.711 a/μlaw, G.723.1 (6.3K/bps), G.729A (Optional)
- VAD (Voice Activity Detection), CNG (Comfort Noise Generate)
- G.168/165-compliant adaptive echo cancellation
- Dynamic Jitter Buffer
- Bad Frame Interpolation
- Call Transfer (H.450.2)
- Call Forward (H.450.3)
- Call Hold (H.450.4)
- Gain Settings
- Provide Call Progress Tone: Dial tone, busy tone, call-holding tone and ring-back tone

Management Features:

Two easy ways for system configuration

- Console port: RS-232C port
- TELNET
- HTTP Brower (e.g. Internet Explorer)

1.3 Accessories and equipment

- ◆ The voice gateway in 2/4/6 FXO ports models and only one RJ-45 connector (WAN).
- ◆ The AC adapter.
- ◆ The CD of user manual.
- ◆ The connection cable in RS-232 interface.

1.4 Appearance

1.4.1 Dynamix DW-0002/H

Front panel: The LED light provides system message of Dynamix DW-0002/H.



Power : Light on means Dynamix DW-0002/H is power on.

L1-L2 : Light on means the line is in use.

Link : Light on means Dynamix DW-0002/H is connected to the network correctly.

Act : LED should be light on and in flash display when data is transmitting.

Ready : 1. Light on and in slow flash means Dynamix DW-0002/H is in operation mode.

Status : 1. Light on means Dynamix DW-0002/H successfully

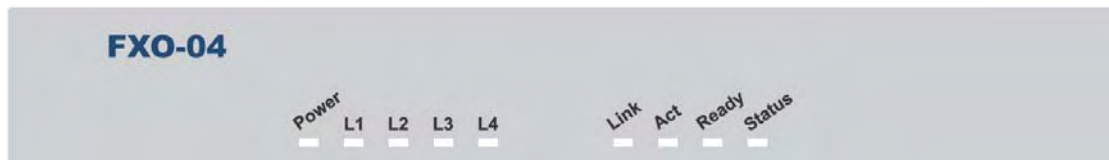
- registered to Gatekeeper when it is set as Gatekeeper Mode.
2. LED flash means Dynamix DW-0002/H is not registered to Gatekeeper when it is set as Gatekeeper Mode.
 3. Or when Dynamix DW-0002/H is in downloading mode, LED should be flash as well.
 4. Light off means Dynamix DW-0002/H is in Peer-to-Peer Mode.

Back panel:



1.4.2 Dynamix DW-0004/H

Front panel: The LED light provides system message of FXO GateWay.



Power : Light on means FXO GateWay is power on.

L1-L4 : Light on means the line is in use.

Link : Light on means FXO GateWay is connected to the network correctly.

Act : LED should be light on and in flash display when data is transmitting.

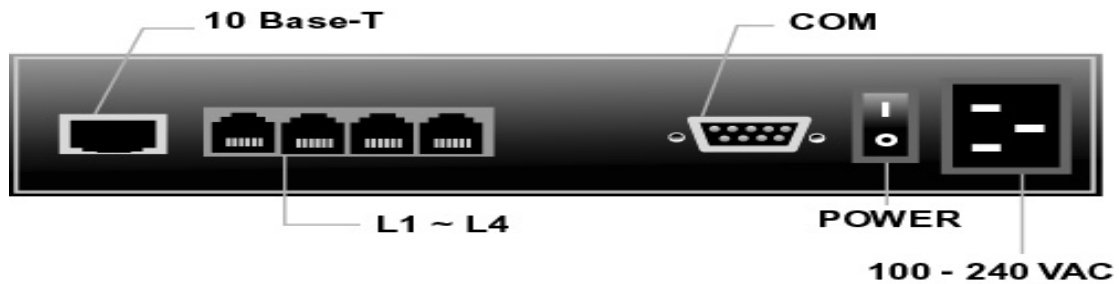
Ready : 1. Light on and in slow flash means FXO GateWay is in operation mode.

Status : 1. Light on means FXO GateWay successfully registered to Gatekeeper when it is set as Gatekeeper Mode.

2. LED flash means FXO GateWay is not registered to

- Gatekeeper when it is set as Gatekeeper Mode.
- 3. Or when FXO GateWay is in downloading mode, LED should be flash as well.
- 4. Light off means FXO GateWay is in Peer-to-Peer Mode.

Back panel:



1.4.3 Dynamix DW-0006/H

Front panel: The LED light provides system message of Dynamix DW-0006/H.



Power : Light on means Dynamix DW-0006/H is power on.

L1-L6 : Light on means the line is in use.

Link : Light on means Dynamix DW-0006/H is connected to the network correctly.

Act : LED should be light on and in flash display when data is transmitting.

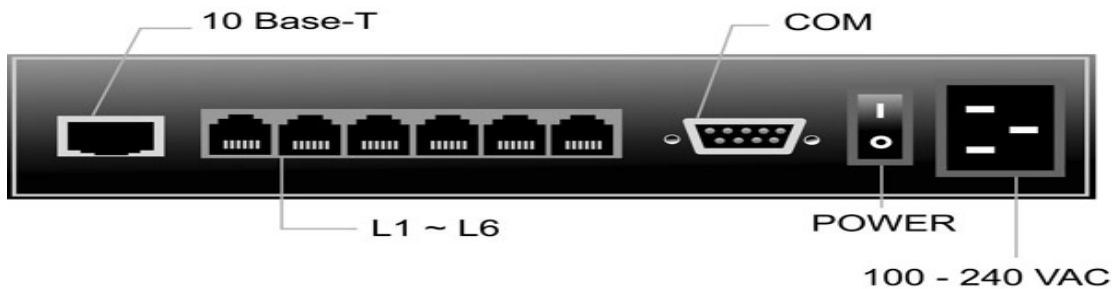
Ready : 1. Light on and in slow flash means Dynamix DW-0006/H is in operation mode.

Status : 1. Light on means Dynamix DW-0006/H successfully registered to Gatekeeper when it is set as Gatekeeper Mode.
 2. LED flash means Dynamix DW-0006/H is not registered to Gatekeeper when it is set as Gatekeeper Mode.
 3. Or when Dynamix DW-0006/H is in downloading mode,

LED should be flash as well.

4. Light off means Dynamix DW-0006/H is in Peer-to-Peer Mode.

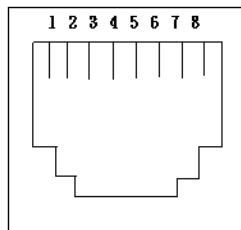
Back panel:



1. Ethernet Port

LAN/WAN: 10/100 Base-T; RJ-45 socket, complied with ETHERNET 10/100base-T.

The pin-out is as following:



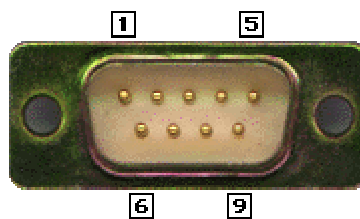
PIN 1, 2: Transmit

PIN 3, 6: Receive




2. COM:

RS232 console port (DB-9pin **male** connector)

Note: use straightforward cable to connect to your computer.



PINOOTS

Pin	Name	Dir	Description
2	RXD		Receive Data
3	TXD		Transmit Data
5	GND		System Ground

3. TEL:

RJ-11 connector, FXS interface is for connecting the analog phone sets or trunk line of PABX.

4. LINE:

RJ-11 connector, FXO interface is for connecting the extension line of PABX or PSTN Line.

5. 12V DC:

Input AC 100V~120V;output DC12V.

2. How to Setup and connect basically

2.1 System Requirement

1. One PC (a) Pentium 100 or above, 64 RAM, Windows 98 or above.
(b) Ethernet card or COM port
2. One standard straightforward RS-232 cable (female connector to Gateway side).
3. PBX extension Lines or PSTN Lines.
4. Software tools (a) Hyper Terminal, TELNET, Web Browser.
(b) Gatekeeper (optional).

2.2 IP Environment Setting

User must prepare a valid IP address, complied with IP Network, for Gateway's proper operation.

For testing the validation of chosen IP address, using the same IP configuration in other PC or Notebook, and then try to connect to Public Internet (go to well-known website, receive Internet mail, or ping a specific public IP address). If it works, use the same IP address and network configuration for Gateway. Please follow up the step for the configuration of your computer or notebook.

2.2.1 For Windows 2000/NT

Please make sure that the network interface of your computer is working fine and the **cross over line** (RJ-45) is connecting with the computer correctly or you could use a **hub** to connect with your computer and this gateway. Turn on your computer and configure the network parameter as follow:

- 1 Go to the **start** menu and enter the **setting** area. Click **control panel**.
- 2 Enter the network configuration.

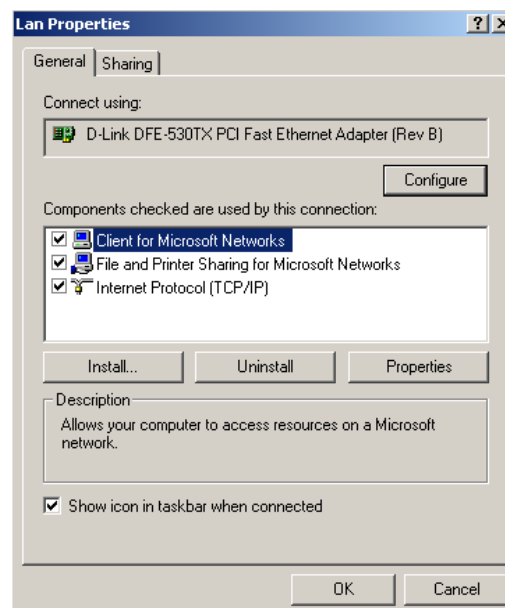


Figure 2.1: Network Configuration

3 Select the **Property** of the LAN card.

4 Setup the ip address, subnet mask and default gateway as below:

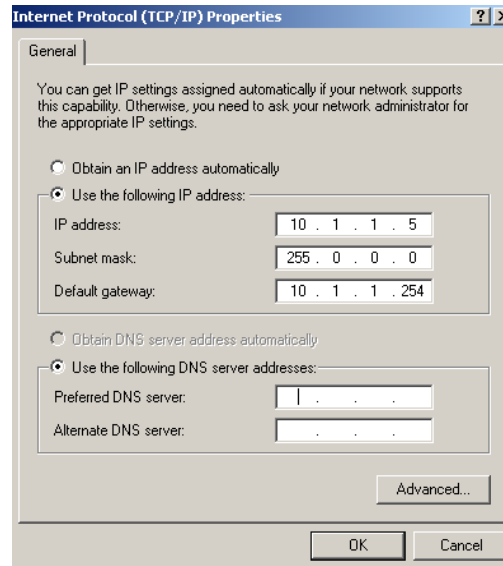


Figure 2.2: Configure the network

5 Click OK after you finished the network setup.

The default ip address, netmask and default gateway address of the gateway is 10.1.1.3, 255.0.0.0, 10.1.1.254.

2.3 Network configurations in your gateway

1 Key in the ip address of the gateway (http://10.1.1.3) with the browser

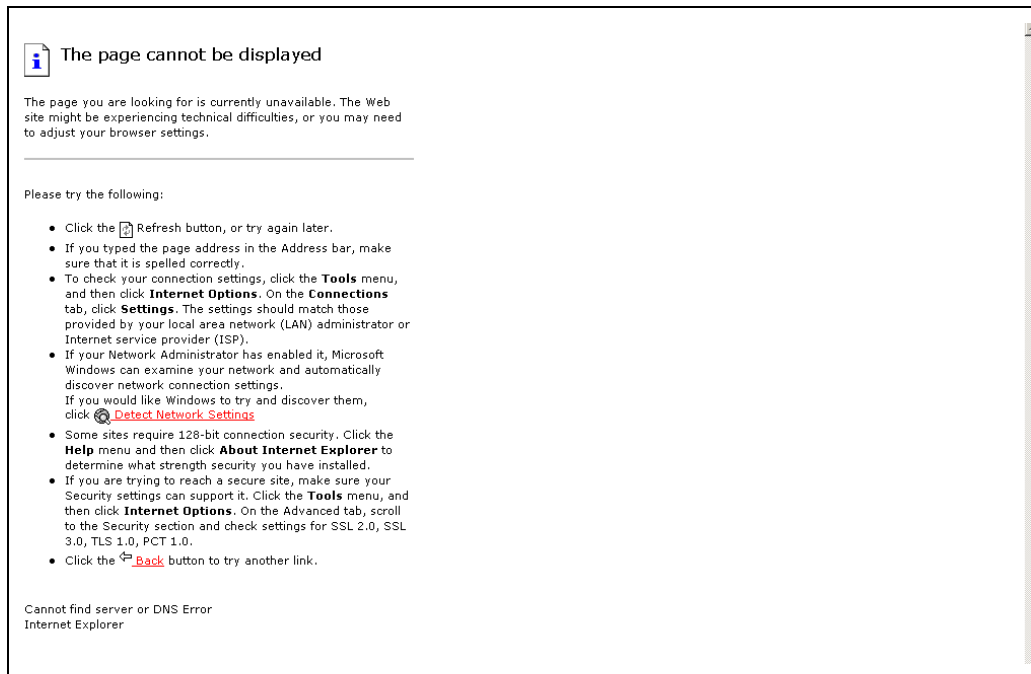


Figure 2.3: WEB Browser

2 After key in the ip address, you have to enter the user name and password to enter the WEB configuration. (Username: root ; No password)

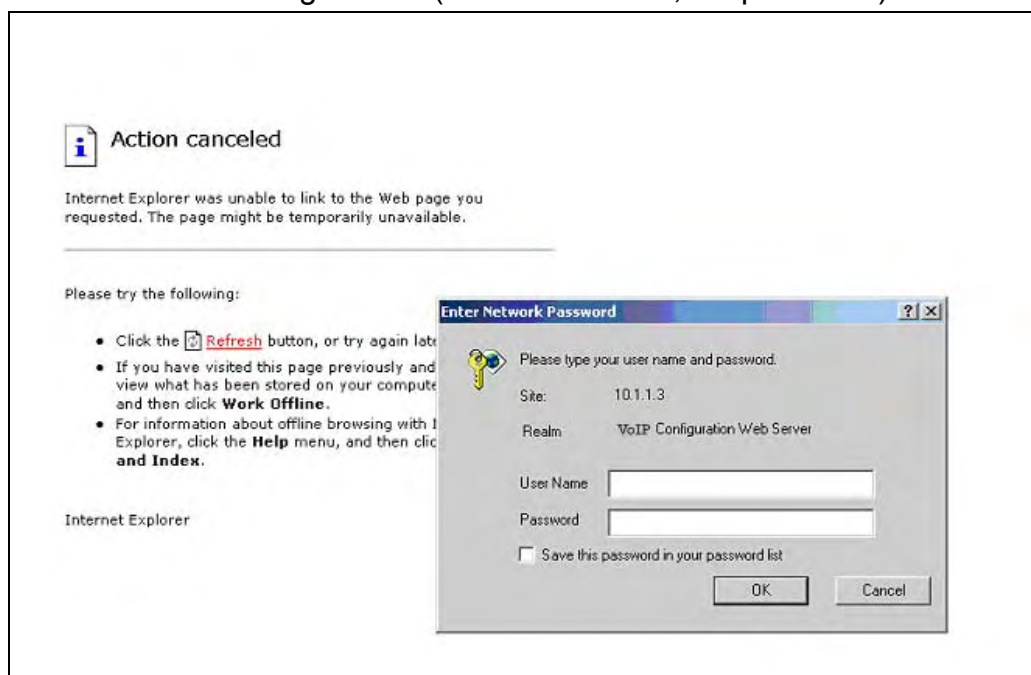


Figure 2.3: Login the username and password

3 You will enter the main page of the configuration after key in the login name and password correctly:

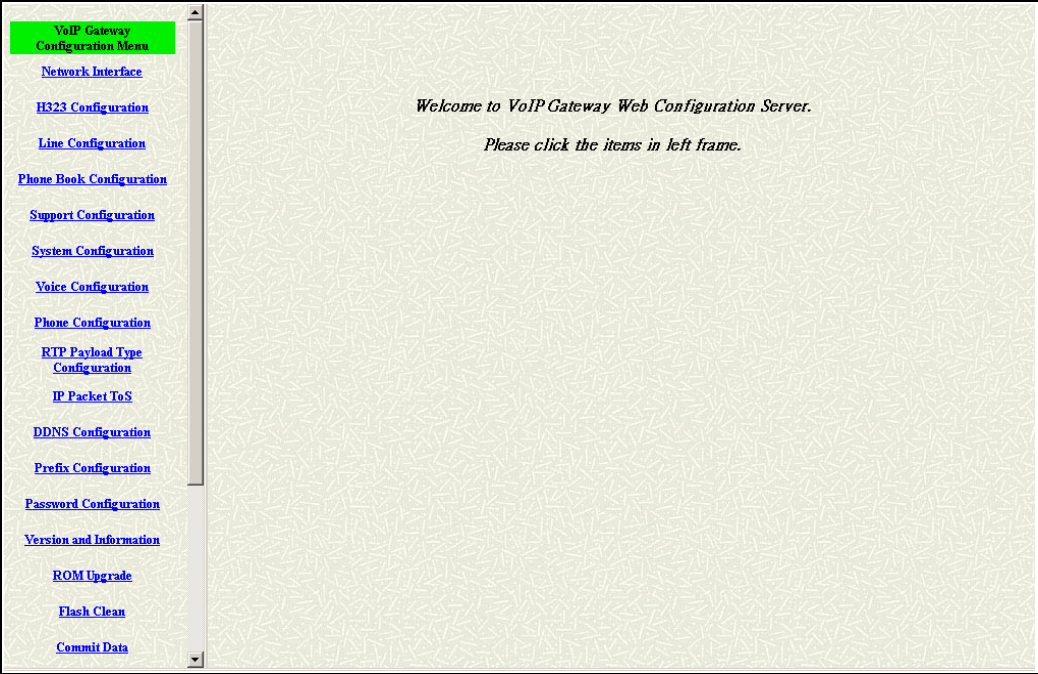


Figure 2.4: The main WEB configuration

4 Press the **Network Interface** to configure the networking of your gateway:

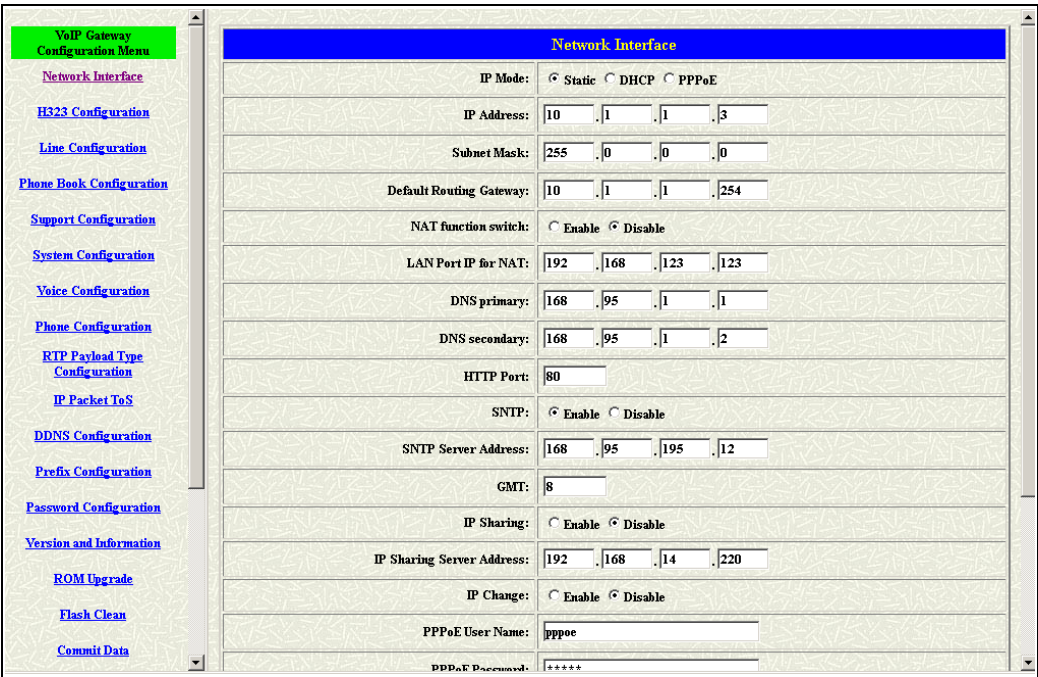


Figure 2.5: The Network Interface

2.3.1 Static ip address

- 1 Please get the correct ip address, netmask and default gateway address from your ISP first. Press the OK button if you finished.

The screenshot shows the 'Network Interface' configuration page in a web-based VoIP Gateway Configuration Menu. The left sidebar lists various configuration options, with 'Network Interface' selected. The main content area displays the following settings:

- IP Mode:** ☒ Static ☐ DHCP ☐ PPPoE
- IP Address:** 210 . 59 . 163 . 160
- Subnet Mask:** 255 . 255 . 255 . 128
- Default Routing Gateway:** 210 . 59 . 163 . 254
- NAT function switch:** ☐ Enable ☒ Disable
- LAN Port IP for NAT:** 192 . 168 . 123 . 123
- DNS primary:** 168 . 95 . 1 . 1
- DNS secondary:** 168 . 95 . 1 . 2
- HTTP Port:** 80
- SNTP:** ☒ Enable ☐ Disable
- SNTP Server Address:** 168 . 95 . 195 . 12
- GMT:** 8
- IP Sharing:** ☐ Enable ☒ Disable
- IP Sharing Server Address:** 192 . 168 . 14 . 220
- IP Change:** ☐ Enable ☒ Disable
- PPPoE User Name:** pppoe
- PPPoE Password:** *****

Figure 2.5: Configure the static ip address

- 2 Press the commit if you finish the configuration.

The screenshot shows the 'Commit Configuration Data' page in the same web-based VoIP Gateway Configuration Menu. The left sidebar is visible, with 'Commit Data' highlighted. The main content area displays the following:

- Commit Configuration Data**
- It will take few seconds...**
- COMMIT** (button)

Figure 2.6: Commit the data

3 Press the reboot if you want the configuration executed.

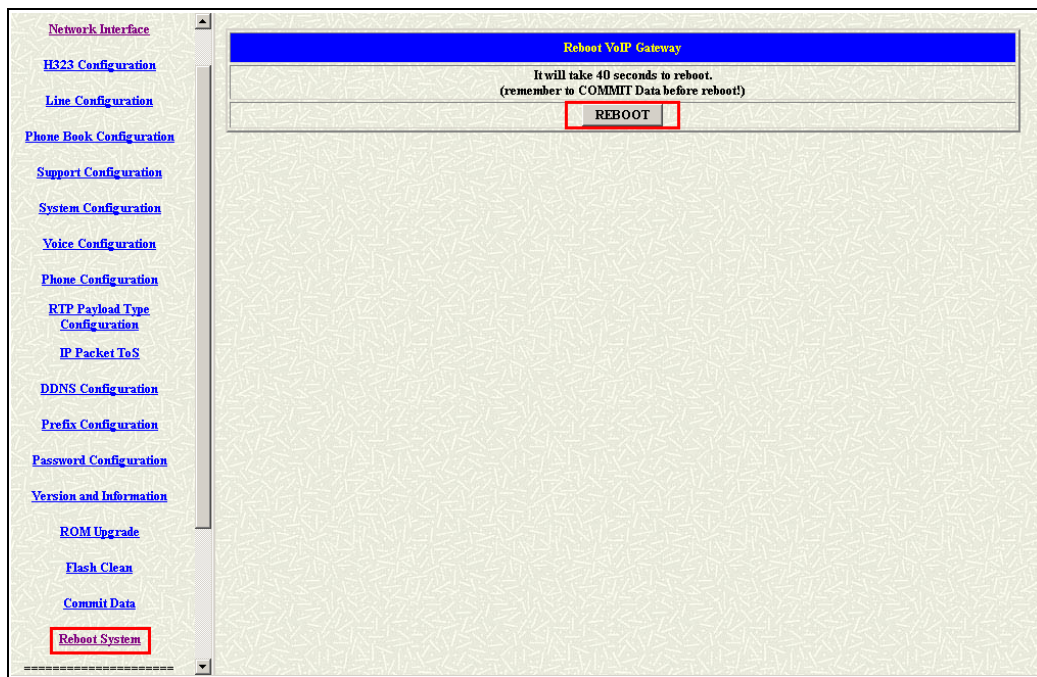


Figure 2.7: Reboot the system

2.3.2 DHCP mode

1 Enable the DHCP if you are using the cable modem or DHCP server.

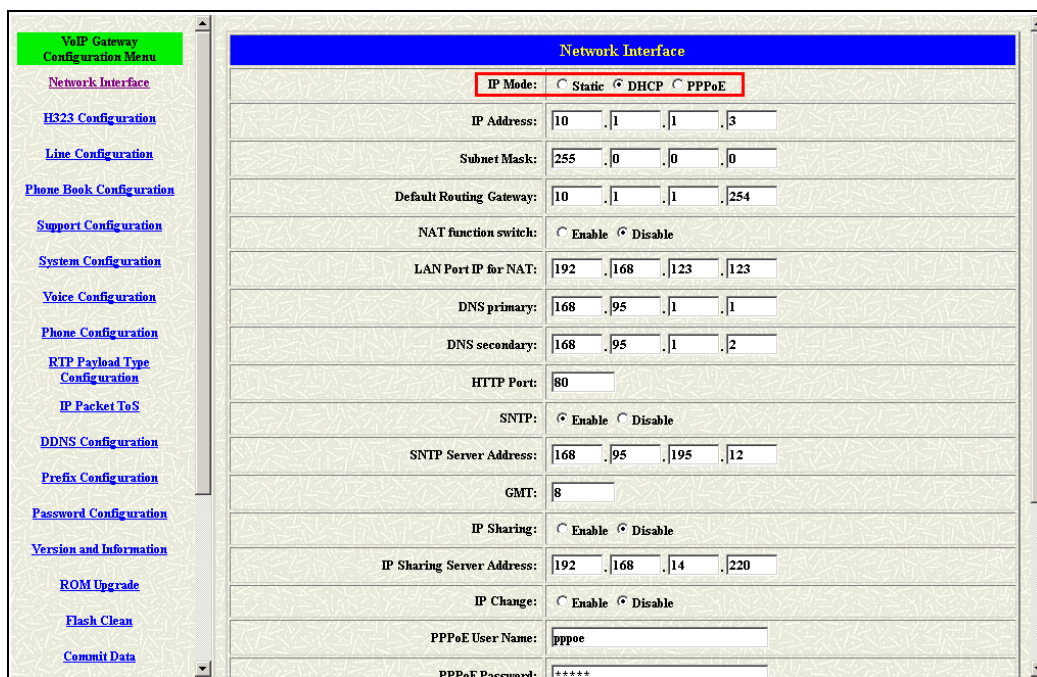


Figure 2.8: Enable the DHCP function

2 Please commit the data and reboot the machine after you enable the DHCP function.

2.3.3 PPPoE mode

1 Enable the PPPoE and press the info about PPPoE configuration in the correct table.

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar and the 'Network Interface' configuration page on the right. The 'IP Mode' is set to 'PPPoE', which is highlighted with a red box. The configuration fields are as follows:

Network Interface			
IP Mode:	<input type="radio"/> Static <input type="radio"/> DHCP <input checked="" type="radio"/> PPPoE		
IP Address:	10	1	3
Subnet Mask:	255	0	0
Default Routing Gateway:	10	1	254
NAT function switch:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable		
LAN Port IP for NAT:	192	168	123
DNS primary:	168	95	1
DNS secondary:	168	95	2
HTTP Port:	80		
SNTP:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable		
SNTP Server Address:	168	95	195
GMT:	8		
IP Sharing:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable		
IP Sharing Server Address:	192	168	14
IP Change:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable		
PPPoE User Name:	pppoe		
PPPoE Password:	*****		

Figure 2.9: Switch to PPPoE function

VoIP Gateway Configuration Menu	
Network Interface	LAN Port IP for NAT: 192 . 168 . 123 . 123
H323 Configuration	DNS primary: 168 . 95 . 1 . 1
Line Configuration	DNS secondary: 168 . 95 . 1 . 2
Phone Book Configuration	HTTP Port: 80
Support Configuration	SNTP: <input checked="" type="radio"/> Enable <input type="radio"/> Disable
System Configuration	SNTP Server Address: 168 . 95 . 195 . 12
Voice Configuration	GMT: 8
Phone Configuration	IP Sharing: <input type="radio"/> Enable <input checked="" type="radio"/> Disable
RTP Payload Type Configuration	IP Sharing Server Address: 192 . 168 . 14 . 220
IP Packet ToS	IP Change: <input type="radio"/> Enable <input checked="" type="radio"/> Disable
DDNS Configuration	PPPoE User Name: 123@xxnet.net
Prefix Configuration	PPPoE Password: *****
Password Configuration	PPPoE IP Address:
Version and Information	PPPoE Destination:
ROM Upgrade	PPPoE DNS primary:
Flash Clean	Reboot After Remote Host Disconnection: <input checked="" type="radio"/> Enable <input type="radio"/> Disable
Commit Data	<input type="button" value="OK"/>

Figure 2.10: Configure the info about PPPoE

- 2 Please commit the data and reboot the machine after you finished the configuration of PPPoE.

2.4 Making a VoIP Call

There are two modes that you could configure the gateway for making VoIP calls. One is the Peer-to-Peer mode, another is GK routed mode. The configurations and functions are different. Please make sure about the mode you want and follow up the step to configure your gateway.

2.4.1 Configure the gateway into the Peer-to-Peer mode

- 1 Enter the H323 Configuration table and change the mode to Peer-to-Peer.

H323 Configuration	
Mode:	<input type="radio"/> GK routed <input checked="" type="radio"/> Peer-to-Peer
Gatekeeper IP:	10.1.1.2
2nd Gatekeeper IP:	10.1.1.2
Default Gateway IP:	x
Gateway Type:	<input checked="" type="radio"/> Gateway <input type="radio"/> Terminal
Registered Prefix:	0
Line1/TEL1 Number:	000
Line2/LINE1 Number:	001
Line3/TEL2 Number:	002
Line4/LINE2 Number:	003
Line5 Number:	nil
Line6 Number:	nil
Registered Alias:	4FXO-00e792
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK

Figure 2.11: Configure the Peer-to-Peer mode

- 2 Press the OK button that is on the bottom of this page to save the configuration.

Registered Alias:	4FXO-00e792
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK
Time To Live (TTL):	60
RTP Port:	16384
Gatekeeper finding port:	1718
Gatekeeper RAS Port:	1719
H225 RAS Port:	1024
H225 Call Signal Port:	1720
Destination H225 Call Signal Port:	1720
Allocate Port Range Start:	2000
Allocate Port Range End:	19999
Response Timeout:	15
Connection Timeout:	60
H235 Security Token:	*
<input checked="" type="button" value="OK"/>	

Figure 2.12: The OK button

- 3 Enter the Phone Book configuration table and configure the name, ip address and phone number of the destination.

The screenshot shows the 'Phone Book' configuration page. On the left is a navigation menu with options like 'VoIP Gateway Configuration Menu', 'Network Interface', 'H323 Configuration', 'Line Configuration', 'Phone Book Configuration' (highlighted), 'Support Configuration', 'System Configuration', 'Voice Configuration', 'Phone Configuration', 'RTP Payload Type Configuration', 'IP Packet ToS', 'DDNS Configuration', 'Prefix Configuration', 'Password Configuration', 'Version and Information', 'ROM Upgrade', 'Flash Clean', and 'Commit Data'. The main area has a blue header 'Phone Book' above a table with 7 columns: Index, Name, E164, IP Address, Port, Drop, and Insert. Below the table is a 'New Record' form with fields for Index, Name, E164, IP Address, Port, Drop Prefix (with radio buttons for 'Disable' and 'Enable'), and Insert Prefix. At the bottom of the form are 'Add Data' and 'Delete Data' buttons.

Figure 2.11: Phone Book

□Example□

This screenshot shows the 'Phone Book' configuration page with one record added. The table now contains one row with the following data: Index: 1, Name: test, E164: 123, IP Address: 10.1.1.100, Port: (empty), Drop: (empty), and Insert: (empty). The 'Add Data' button in the 'New Record' form is highlighted with a red box.

Figure 2.12: The example of Phone Book configuration

This is the first record of Phone Book. So the index is **1**

The name of the destination: **test**

The E164 number (phone number) of the destination: **123**

The ip address of the destination: **10.1.1.100**

- 4 Press the “Add Data” button when you finished, and the new table will display on the first index if you press the Phone Book configuration button.

VoIP Gateway Configuration Menu

- Network Interface
- H323 Configuration
- Line Configuration
- Phone Book Configuration
- Support Configuration
- System Configuration
- Voice Configuration
- Phone Configuration
- RTP Payload Type Configuration
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade
- Flash Clean
- Commit Data

Index	Name	E164	IP Address	Port	Drop	Insert
1	test	123	10.1.1.100	1720	Disable	

New Record

Index	Name	E164	IP Address	Port	Drop Prefix	Insert Prefix
					<input checked="" type="radio"/> Disable <input type="radio"/> Enable	

Add Data Delete Data

Figure 2.13: To show the Phone Book record

- 5 Please Commit it and Reboot the system if the configuration is finished.

Please make sure about that the FXO port was connected with the PSTN line or the extension line of the PABX before you start to make a voip call.

2.4.2 Configure the gateway into the GK routed mode

- 1 Enter the H323 Configuration table and change the mode from Peer-to-Peer to GK routed. To change the GK information from your service provider (Ex: The Gatekeeper IP, Registered Prefix and Registered Alias).

H323 Configuration	
Mode:	<input checked="" type="radio"/> GK routed <input type="radio"/> Peer-to-Peer
Gatekeeper IP:	10.1.1.250
2nd Gatekeeper IP:	10.1.1.250
Default Gateway IP:	x
Gateway Type:	<input checked="" type="radio"/> Gateway <input type="radio"/> Terminal
Registered Prefix:	100
Line1/TEL1 Number:	1001
Line2/LINE1 Number:	1002
Line3/TEL2 Number:	1003
Line4/LINE2 Number:	1004
Line5 Number:	nil
Line6 Number:	nil
Registered Alias:	test
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK

Figure 2.14: Configure the GK info

- 2 Press the OK button that is on the bottom of this page to save the configuration.

Registered Alias:	test
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK
Time To Live (TTL):	60
RTP Port:	16384
Gatekeeper finding port:	1718
Gatekeeper RAS Port:	1719
H225 RAS Port:	1024
H225 Call Signal Port:	1720
Destination H225 Call Signal Port:	1720
Allocate Port Range Start:	2000
Allocate Port Range End:	19999
Response Timeout:	15
Connection Timeout:	60
H.235 Security Token:	*
<input checked="" type="button" value="OK"/>	

Figure 2.15: Press OK to save the data

- 3 Press the Commit Data and Reboot System buttons when you finished the configuration.

2.4.2.1 The type in GK routed mode

There are two types in the GK routed mode you could choose. One is Gateway type and another is Terminal type. There are some different functions, applications and configurations between the Gateway type and Terminal type. In FXO series gateway, the difference between the Gateway and Terminal type is for registering on the Cisco GK. The Terminal type is needed if the endpoints want to register on the Cisco GK successfully. But all the configuration and function is the same if you set the gateway in Gateway or Terminal type. Another difference is for the one-stage-dialing function. Only the gateway type could support the one-stage-dialing function.

3. Advance Configurations

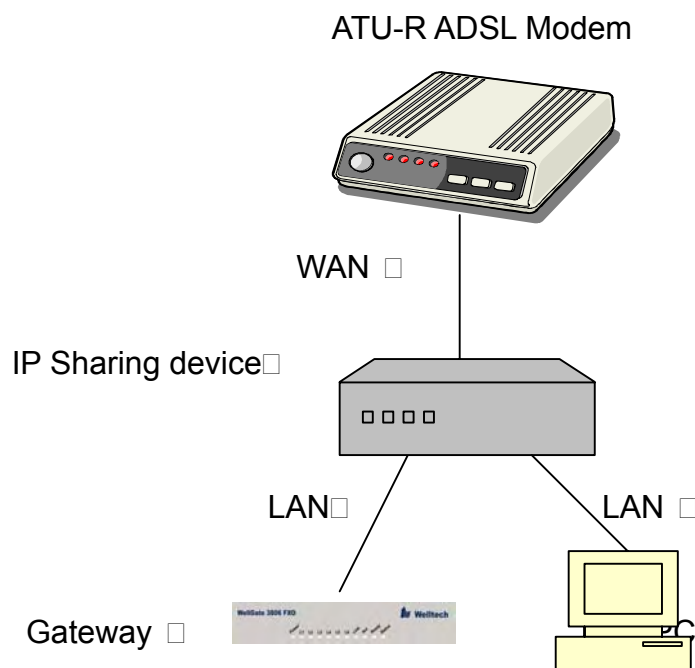
There are too many advanced commands for the advanced users. The following chapters are based on the application layer. Please get the info what you need. If you need the command, please watching the chapter of Command Line Interface.

3.1 IP Sharing

The function is only for the user who is using the IP Sharing device. It is said Gateway is connected to the IP Sharing device.

The IP Sharing Device must support the DMZ or Virtual server functions

An example such as ADSL network is in the following.



- ◆ The WAN IP Address obtained from ADSL has two kinds of methods.
One is fixed IP Address, while user applies for one or more fixed IP Addresses.
Another is dynamic IP Address while user applies for dial-up connection way.
- ◆ The LAN IP Address of User's PC can be set as DHCP client in order to

gain a valid one.

- ◆ Another IP Address for Gateway must be set as an fixed one in order for that IP Sharing device pass forwarding the relevant information from WAN to LAN. Besides, a valid IP Address meets the IP Sharing device (LAN site) is the element.
- ◆ Please configure your gateway just like below:

1 Enter the IP address, Netmask and the default gateway in the network table.

Please follow up your IP Sharing device.

The screenshot shows the 'VoIP Gateway Configuration Menu' with a sidebar on the left containing links like 'Network Interface', 'H323 Configuration', 'Line Configuration', etc. The main area is titled 'Network Interface' and contains the following configuration fields:

IP Mode:	<input checked="" type="radio"/> Static <input type="radio"/> DHCP <input type="radio"/> PPPoE
IP Address:	192 . 168 . 1 . 200
Subnet Mask:	255 . 255 . 255 . 0
Default Routing Gateway:	192 . 168 . 1 . 254
NAT function switch:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN Port IP for NAT:	192 . 168 . 123 . 123
DNS primary:	168 . 95 . 1 . 1
DNS secondary:	168 . 95 . 1 . 2
HTTP Port:	80
SNTP:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
SNTP Server Address:	168 . 95 . 195 . 12
GMT:	8
IP Sharing:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
IP Sharing Server Address:	192 . 168 . 14 . 220
IP Change:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
PPPoE User Name:	pppoe
PPPoE Password:	*****

Figure 3.1: Network configuration

2 Enable the ip sharing function and put the static ip address in the server address table.

VoIP Gateway Configuration Menu

- Network Interface**
- H323 Configuration
- Line Configuration
- Phone Book Configuration
- Support Configuration
- System Configuration
- Voice Configuration
- Phone Configuration
- RTP Payload Type Configuration
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade
- Flash Clean
- Commit Data

Network Interface

IP Mode: ☒ Static ☐ DHCP ☐ PPPoE

IP Address: 192 . 168 . 1 . 200

Subnet Mask: 255 . 255 . 255 . 0

Default Routing Gateway: 192 . 168 . 1 . 254

NAT function switch: ☐ Enable ☒ Disable

LAN Port IP for NAT: 192 . 168 . 123 . 123

DNS primary: 168 . 95 . 1 . 1

DNS secondary: 168 . 95 . 1 . 2

HTTP Port: 80

SNTP: ☒ Enable ☐ Disable

SNTP Server Address: 168 . 95 . 195 . 12

GMT: 8

IP Sharing: ☒ Enable ☐ Disable

IP Sharing Server Address: 218 . 59 . 163 . 157

IP Change: ☐ Enable ☒ Disable

PPPoE User Name: pppoe

PPPoE Password: *****

Figure 3.2: Enable the ip sharing function

- Fixed IP – Please put the ip address of the ip sharing device in the IP Sharing Server Address table.**
- Dynamic IP – Please enable the ip change function and leave the ip sharing server address.**

3 The IP change function is only for the special usage

Phone Configuration

- RTP Payload Type Configuration**
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade

DNS secondary: 168 . 95 . 1 . 2

HTTP Port: 80

SNTP: ☒ Enable ☐ Disable

SNTP Server Address: 168 . 95 . 195 . 12

GMT: 8

IP Sharing: ☒ Enable ☐ Disable

IP Sharing Server Address: 192 . 168 . 14 . 220

IP Change: ☒ Enable ☐ Disable

Figure 3.3: IP Change

- IP Change Function:** The ip address of the IP Sharing Server Address will use what you configured in that table if you disable the IP Change function. It supports the static ip address. If user is using the dynamic ip address, this function has to be enabled.

If the wan port of the ip sharing device is using the dynamic ip address, the gateway couldn't get the ip address if the GK isn't from us. So the ip

change is only support the GK from us.

4 Please Commit it and Reboot the system if the configuration is finished.

**This chapter is focus on the DMZ function of the IP Sharing Device,
Please get another application from our web site.**

3.2 Network Interface

Users have to configure the Network configurations in this page. This gateway will be work while it is connecting with the internet network. Please get more info from the following descriptions. (see figure 3.4)

The screenshot shows a web-based configuration interface for a VoIP Gateway. On the left is a sidebar menu with various configuration options. The main area is titled 'Network Interface' and contains several configuration fields. The 'IP Mode' is set to 'Static'. The 'IP Address' is 10.1.1.3, 'Subnet Mask' is 255.0.0.0, and 'Default Routing Gateway' is 10.1.1.254. The 'NAT function switch' is set to 'Disable'. The 'LAN Port IP for NAT' is 192.168.123.123. The 'DNS primary' is 168.95.1.1 and 'DNS secondary' is 168.95.1.2. The 'HTTP Port' is 80. The 'SNTP' is set to 'Disable'. The 'SNTP Server Address' is 168.95.195.12. The 'GMT' is 8. The 'IP Sharing' is set to 'Disable'. The 'IP Sharing Server Address' is 192.168.14.220. The 'IP Change' is set to 'Disable'. The 'PPPoE User Name' is 'pppoe' and the 'PPPoE Password' is masked with asterisks.

Network Interface	
IP Mode:	<input checked="" type="radio"/> Static <input type="radio"/> DHCP <input type="radio"/> PPPoE
IP Address:	10 . 1 . 1 . 3
Subnet Mask:	255 . 0 . 0 . 0
Default Routing Gateway:	10 . 1 . 1 . 254
NAT function switch:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
LAN Port IP for NAT:	192 . 168 . 123 . 123
DNS primary:	168 . 95 . 1 . 1
DNS secondary:	168 . 95 . 1 . 2
HTTP Port:	80
SNTP:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
SNTP Server Address:	168 . 95 . 195 . 12
GMT:	8
IP Sharing:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
IP Sharing Server Address:	192 . 168 . 14 . 220
IP Change:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
PPPoE User Name:	pppoe
PPPoE Password:	*****

Figure 3.4: Network Interface

- ◆ IP Mode – To configure the fixed or dynamic ip address for this unit. Please configure to PPPoE if the ADSL is using the PPPoE type.
- ◆ IP Address – Define the ip address for your networking if it is the fixed ip. Please get this info from your ISP.
- ◆ Subnet Mask – Define the mask address for your networking. Please get this info from your ISP.
- ◆ Default Gateway – Define the default gateway for your networking. Please get this info from your ISP.
- ◆ NAT function switch – To enable or disable the NAT function.
- ◆ LAN port IP for NAT – To configure the lan port ip for the NAT device.
 - The configuration of NAT function and LAN port ip configuration could support the the NAT model only.
- ◆ DNS primary – To configure the first ip address for the DNS server.
- ◆ DNS secondary – To configure the second ip address for the DNS server.
- ◆ HTTP Port – To configure the HTTP port for access this unit from the

remote side.

- ◆ SNTP – Enable the SNTP server registering function if user wants to get the correct time from the Command Line Interface.
- ◆ SNTP Server Address – Enter the correct ip address of the SNTP server or get the incorrect time from the Command Line Interface.
- ◆ GMT – Configuring the time area for the time display in the Command Line Interface.
- ◆ IP Sharing – Enable this function if the gateway is behind the IP sharing device.
- ◆ IP Sharing Server Address – Enter the WAN IP address of the IP sharing device if it is the fixed ip.
- ◆ IP Change – Enable this function if the WAN IP address of the IP sharing device is dynamic address.

The IP change function could support the GK from us only. Please pay more attentions about this function if your IP sharing device is using the dynamic IP address.

- ◆ PPPoE User Name – To configure the user name for the PPPoE connection.
- ◆ PPPoE Password – To configure the password for the PPPoE connection.
- ◆ PPPoE IP Address – In the PPPoE mode, this table will show the ip address that this unit gets from the ISP.
- ◆ PPPoE Destination – In the PPPoE mode, this table will show the default gateway address that this unit gets from the ISP.
- ◆ PPPoE DNS primary – In the PPPoE mode, this table will show the DNS ip address that this unit gets from the ISP.
- ◆ After Remote Host Disconnection – This unit will reboot and re-connect to the ISP

3.3 H323 Information

This WEB page will help user to configure the information about the dial mode, GK information and some TCP/IP port for the communication. Please get more info about this configuration from the below detail descriptions. (see figure 3.5)

H323 Configuration	
Mode:	<input checked="" type="radio"/> GK routed <input type="radio"/> Peer-to-Peer
Gatekeeper IP:	10.1.1.2
2nd Gatekeeper IP:	10.1.1.2
Default Gateway IP:	x
Gateway Type:	<input checked="" type="radio"/> Gateway <input type="radio"/> Terminal
Registered Prefix:	0
Line1/TEL1 Number:	000
Line2/LINE1 Number:	001
Line3/TEL2 Number:	002
Line4/LINE2 Number:	003
Line5 Number:	
Line6 Number:	
Registered Alias:	4FXO-00e792
Display Information:	4FXO
Gatekeeper Discovery:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gatekeeper ID:	GK

Figure 3.5: H323 Information

- ◆ Mode – Pick up the calling mode for this gateway.
 - GK routed : Users have to registered on the GK if users picked up this option.
 - Direct : It only supports the peer-to-peer mode and users have to define the phone book for this mode.
- ◆ Gatekeeper IP Address – Enter the GK ip if users pick up the GK routed mode. **Support the GK mode only.**
- ◆ 2nd Gatekeeper IP – Support the secondary GK function. **Support the GK mode only.**
- ◆ Gateway Type – Pick up the type for gateway. **Support the GK mode only.**
 - Gateway : Could support one-stage-dialing function.
 - Terminal : Couldn't support one-stage-dialing function.
- ◆ Registered Prefix – The phone number for the GK registering. **Support the GK mode only.**
- ◆ Line 1/ TEL 1 Number – Configure the number of the first port in this unit.

- ◆ Line 2 / LINE1 Number – Configure the number of the second port in this unit.
- ◆ Line 3 / TEL 2 Number – Configure the number of the third port in this unit.
- ◆ Line 4 / LINE2 Number – Configure the number of the fourth port in this unit.
- ◆ Line 5 Number – Configure the number of the fifth port in this unit.
- ◆ Line 6 Number – Configure the number of the sixth port in this unit.
- ◆ Registered Alias – The name of this gateway for the GK registering.
Support the GK mode only.
- ◆ Display Information – This configuration will change the display name for this unit.
- ◆ Gatekeeper Discovery – Gateway will send the GRQ message and it will register on the GK if it had received the GCF message.

When users enable this function, the GK name is necessary for this. User could enable this function first and define the name of the GK. Gateway will send the GRQ message by broadcast if users define the IP address of GK is 255.255.255.255. If the gateway receive GCF message that's meaning the GK accept the request from gateway, so the gateway could register on that GK successfully who reply the GCF message.

- ◆ Gatekeeper ID – The name of the GK. It has used with the Gatekeeper Discovery function. **Support the GK mode only.**
- ◆ Time To Live(TTL) – The time for the registered confirm. **Support the GK mode only.**
- ◆ RTP Port – The UDP port for the voice sending. RTP ports support a range of the UDP. The line 1 is using UDP(RTP) 16384 and (RTCP) 16385. The line 2 is using UDP(RTP) 16386 and (RTCP) 16386....etc. This configuration is defining the start port for the RTP packets. **Support the GK and Peer-to-Peer mode both.**
- ◆ Gatekeeper finding port – The port for the Gatekeeper Discovering function of this gateway. **Support the GK mode only.**
- ◆ Gatekeeper RAS Port – The GK registering port of this gateway. **Support the GK mode only.**
- ◆ H225 RAS Port – The RAS port of this unit. **Support the GK mode only.**
- ◆ H225 Call Signal Port – The Call Signal port of this unit. **Support the GK mode only.**
- ◆ Destination H225 Call Signal Port – To configure the Call Signal port for the

destination unit. **Support the GK mode only.**

- ◆ Allocate Port Range Start – To configure the beginning of the ports.
- ◆ Allocate Port Range End – To configure the end of the ports.

The port range is for the H245 TCP port. Please info your vendor if you want to configure these ports for using.

- ◆ Response Timeout – The call will be timed out if the call proceeding message didn't received from the remote side. **Support the GK mode only.**
- ◆ Connection Timeout – The call will be timed out if the connect message didn't received from the remote side. **Support the GK mode only.**
- ◆ H235 Security Token – Support the H235 security policy for the GK. **Support the GK mode only.**

3.4 Line Configuration

The Line configuration will show the status of the registrations and the ports. It includes the hunt group, hotline, and no answer forward configuration. Press the Line configuration button to enter configuration table (see figure 3.6)

The screenshot shows a web-based configuration interface for a VoIP Gateway. On the left is a sidebar menu with various configuration options. The main area displays the 'Line Configuration' table, which lists six lines with their respective settings.

Line Number	Type	Hunting Group	Hot Line	No Answer Forward (FXS)	Registration	Status
Line1 / TEL1:	FXO	1	x		Registered	Ready
Line2 /Line1:	FXO	2	x		Registered	Ready
Line3 /TEL2:	FXO	3	x		Registered	Ready
Line4 /Line2:	FXO	4	x		Registered	Ready
Line5:						
Line6:						

Below the table is an 'OK' button.

Figure 3.6: Line Information

- ◆ Type – Just show the interface for this port.
- ◆ Hunt Group –Define the group number of this port. When the port is busy, the call could be transferred to another port in the same group. Only the same type could be configured in the same group.
- ◆ Hotline –Enable or Disable the hotline mode. The hotline mode will be enabled if you enter the hotline number. The default setting is disabled.
- ◆ No Answer Forward –When the port didn't answer the call, this call will be forwarded to the number you configured. This is only for the E164 number or the phone number you want to transfer.

This function is only for the FXS or FXS/FXO model. The FXO model couldn't support this function.

- ◆ Registration –To show the gateway registered on the GK or not. **Support the GK mode only.**
- ◆ Status –To show the port is busy or ready.

3.5 Phone Book Configuration

The Phone Book configuration is only support the gateway in Peer-to-Peer mode. Please refer the chapter 2 about the Peer-to-Peer mode. (see figure 3.7)

Phone Book						
Index	Name	E164	IP Address	Port	Drop	Insert

New Record						
Index	Name	E164	IP Address	Port	Drop Prefix <input checked="" type="radio"/> Disable <input type="radio"/> Enable	Insert Prefix
Add Data Delete Data						

Figure 3.7: Phone Book Configuration

- ◆ Index – The list number of the Phone Book.
- ◆ Name – The name for this contact number.
- ◆ E164 – The dialing number for the calling side.
- ◆ IP Address – The destination IP address for this phone number.
- ◆ Port – The call signal port of the destination.
- ◆ Drop Prefix – Support the drop function. Enable is for enable this drop function; Disable is for disable this drop function. The Drop Prefix will drop the E164 number, which you had configured in the E164 table.
- ◆ Insert Prefix – Support the insert digits function.

1. It will be the drop function if user enable the Drop Prefix function and put nothing into the Insert Prefix table.
2. It will be the insert function if user disable the Drop Prefix function and put the digits into the Insert Prefix table.
3. It will be the replace function if user enable the Drop Prefix function and put the digits into the Insert Prefix table.

- ◆ Delete Date – If users want to delete the record from the table, enter the index number first and press this button. The record will be deleted.

3.6 Support Configuration

This gateway support the FAX over IP, fast start function and others function. Please enable or disable these in the Support WEB page. (see figure 3.8)

Support Configuration	
T.38 FAX:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
T.38 FAX ECM:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
T.38 FAX ASN.1:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
FAX Redundancy Depth:	0
Fast Start:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
H.245 Tunneling:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
H.245 Message After Fast Start:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Early H.245:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
H.450 (FXS):	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
OK	

Figure 3.8: Support Configuration

- ◆ T.38 FAX – Enable this function to support the FAX function.
- ◆ T.38 FAX ECM – This function could support the error correction mode during the high-speed function.
- ◆ T.38 FAX ASN.1 Support – Support the ASN.1 function.
- ◆ Fax Redundancy depth – This support function could make the data for the FAX sending for twice. But this will take more bandwidth.
- ◆ Fast Start – Enable this function will support the Fast start function.
- ◆ H.245 Tunneling – Enable or disable the Tunneling support.
- ◆ H.245 Message After Fast Start – Enable or disable this support function.
- ◆ H.245 after faststart – Enable or disable the H.245 after fast start function.
- ◆ Early H.245 – Enable or disable the Early H.245 support function.
- ◆ H.450(FXS) – Support H.450 function.

All the support functions as above have to be supported by the both endpoints. Please make sure about that before you configure these functions. The H450 function only for the FXS model. Please get more info from the FXS manual.

3.7 System Configuration

System Configuration	
Inter Digit Time:	3
Forward Time(FXS):	
Keypad DTMF Type:	<input type="radio"/> In-Band <input type="radio"/> H.245(Alpha) <input checked="" type="radio"/> H.245(Sig) <input type="radio"/> Q.931 <input type="radio"/> RFC2833
User defined Prefix Switch:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
User defined Prefix Disable:	*
User defined Prefix:	0
Codec Select Method:	<input checked="" type="radio"/> Master <input type="radio"/> Caller
Local Generate Ring Back Tone(FXS):	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Gateway Prefix:	<input type="radio"/> Keep <input checked="" type="radio"/> Drop
End of Dial:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Ring Time(FXO):	150 ms
Ring Before Answer(FXO):	3
FXO Type(FXO):	<input checked="" type="radio"/> Normal <input type="radio"/> Force 2nd dial
Hardware Type:	<input checked="" type="radio"/> Auto Detect <input type="radio"/> 1FXS + 1FXO <input type="radio"/> 2FXS + 2FXO
OK	

Figure 3.9: System Configuration

- ◆ Inter Digit Time – The call will be sent out if user didn't enter the digits after this timer.
- ◆ Forward time – It supports the No Answer Forward function. If users configure it for 10, the call will be forwarded when it rings about 10 seconds. From 5 to 65535. **Support the FXS type only.**
- ◆ Keypad Type – User could define the keypad for the DTMF sending.
 - In-Band : The DTMF signal sending by RTP.
 - Out-Band : The DTMF signal sending not by RTP. Including the H.245(Alpha), H.245(Signal), Q.931 and RFC 2833.
- ◆ User Defined Prefix Switch – Select on/off for User defined local zone prefix switch. If user enables prefix function, once user dials out, gateway will automatically add prefix number before number user dialed.
- ◆ User Defined prefix Disable – Disable the defined prefix after press the selected digit (0,1~9, *).
- ◆ User Define prefix – This will be added in the first digits of the numbers that users had dialed. Can also define IP address here in P2P mode, once user press “#”, Gateway will call out this IP address.
- ◆ Codec Select Method – This could support that the codec will follow the MSD (MasterSlaveDetermination) or the caller side.

- Master : Follow the result from the MasterSlaveDetermination.
- Caller : Follow the caller side.

It's only for the special requirement. Please contact with your vendor before you configure this.

- ◆ Local Generate Ring Back Tone(FXS) – To enable or disable the ring back tone generation from the local side. **Support the FXS type only.**
- ◆ Gateway Prefix – To keep or drop the prefix number of this gateway. This only support the Gateway type in the GK routed mode. Please get more detail useful as below:

The gateway could keep or drop the prefix number if the call is coming from the ip side and bring the prefix number of this gateway. The usage of this command is about the one-stage-dialing function. Of course it must work with the Routing table.

Source	Gateway Prefix	Receive	Transfer
10012345	Keep	10012345	10012345
10012345	Drop	10012345	12345

If the incoming call (From IP side) with the number is 10012345, and the prefix number of the destination gateway is 100. The gateway will receive 10012345. But the number it transfer will be 10012345 (Gateway Prefix Keep). The transfer number will be 12345 if the Gateway Prefix function is enabled.

- ◆ End of Dial – To enable or disable the end of dial function. This function key will be the digit “#”.
- ◆ Ring Time(FXO) – It for the ring detection from the PSTN. The ring detection will be failed if users configure it too long.
- ◆ Ring Before Answer(FXO) – This will help the users to answer the calls from PSTN into this gateway quickly. The call will be connected by one time ring if users configure this for 1. From 1 to 10.
- ◆ FXO type – Users could configure all the calls need the 2nd stage dialing or not.
 - Normal : The 1st or 2nd stage dialing will depend on the dialing plan from the users. If user dial the number of the FXO port, that will be the 2nd stage dialing.

- Force 2nd dial : Every calls will need the 2nd stage dialing type.
- ◆ Hardware Type – This will show the hardware detection type. Support the FXS/FXO model only.

3.8 Voice Configuration

Users could configure the voice codec or gain level in this web page.

Please get more detail info from the following description. (see figure 3.10)

VoIP Gateway Configuration Menu

- Network Interface
- H323 Configuration
- Line Configuration
- Phone Book Configuration
- Support Configuration
- System Configuration
- Voice Configuration**
- Phone Configuration
- RTP Payload Type Configuration
- IP Packet ToS
- DDNS Configuration
- Prefix Configuration
- Password Configuration
- Version and Information
- ROM Upgrade
- Flash Clean
- Commit Data

Voice Configuration

Codec Priority	1st	2nd	3rd	4th	5th	6th
	G.723.1	G.729	G.729a	G.729b	G.729ab	G.711mu-Law
Frame Size	G.723 60	G.729 60	G.729a 60	G.711u 40	G.711a 40	G.729b 60
Line1/TEL1 Volume:	Voice 28		Input 32		DTMF 23	
Line2/LINE1 Volume:	Voice 28		Input 32		DTMF 23	
Line3/TEL2 Volume:	Voice 28		Input 32		DTMF 23	
Line4/LINE2 Volume:	Voice 28		Input 32		DTMF 23	
Line5 Volume:	Voice 28		Input 32		DTMF 23	
Line6 Volume:	Voice 28		Input 32		DTMF 23	
G.723 Silence Suppression:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable					
Echo Canceller:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable					
Jitter Buffer:	Min. Delay 90		Max. Delay 150			

Figure 3.10: System Configuration

- ◆ **Codec Priority** – This could help users configure the codec priority for using. Please pay more attentions about the firmware you use. If the firmware only support G.729 series codec, the G.723 codec in this table will be useful.
- ◆ **Frame Size** – To configure the packet size for the codec that users want.
- ◆ **G.723 Silence Suppression** – To enable the VAD and CNG function for the G.723 codec.
- ◆ **Line1 (TEL 1) Volume** – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the first FXS port.
- ◆ **Line2 (LINE 1) Volume** – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the first FXO port.
- ◆ **Line3 (TEL 2) Volume** – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the second FXS port.
- ◆ **Line5 Volume** – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the second FXO port.
- ◆ **Line4 (LINE 2) Volume** – To configure the output gain (voice), input gain

(input) and DTMF gain (DTMF) of the second FXO port.

- ◆ Line6 Volume – To configure the output gain (voice), input gain (input) and DTMF gain (DTMF) of the second FXO port.
- ◆ Echo Cancellor – To enable or disable the echo cancellation function.
- ◆ Jitter Buffer – To configure the Min or Max delay for the Jitter Buffer. The min is from 0ms and the max is 150ms.

3.9 Phone Configuration

This WEB will show the tone generation value from this unit. Please don't configure it if you got some correct value for sure. (see figure 3.11)

Phone Configuration								
Ring Cadence:	Frequency		On		Off		Level	
Ring Back Tone:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
Busy Tone:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
Dial Tone:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
2nd Dial Tone:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
Flash Timer:	Low				High			
OK								

Figure 3.11: Phone Configuration

- ◆ Ring Cadence – TO configure the frequency and cadence for the local ring tone. The cadence is for ms.
- ◆ Ring Back Tone – To configure the value of the local ring back tone generation
- ◆ Busy Tone – To configure the value of the local busy tone.
- ◆ Dial Tone – To configure the value of the local dial tone.
- ◆ 2nd Dial Tone – To configure the value of the local 2nd dial tone.
- ◆ Flash Frequency – To configure the High and Low frequency for the Flash sending.

The Phone Configuration support the FXS and FXS/FXO model only. Users will get the empty value in the FXO web configuration.

3.10 RTP Pay Load Type Configuration

There are more types for the RTP Payload. This web page could support users define the Payload Type for some special payload. (see figure 3.12)

RTP Payload Type Configuration	
RFC2833 Payload Type:	<input type="text" value="96"/>
DTMF Payload Type:	<input type="text" value="100"/>
FAX Payload Type:	<input type="text" value="101"/>
FAX ByPass Payload Type:	<input type="text" value="102"/>
MODEM ByPass Payload Type:	<input type="text" value="103"/>
Redundancy Payload Type:	<input type="text" value="104"/>
MODEM Relay Payload Type:	<input type="text" value="105"/>
<input type="button" value="OK"/>	

Figure 3.12: Pay Load Type Configuration

- ◆ RFC2833 Payload Type – To define the payload type for RFC2833 type.
- ◆ DTMF Payload Type – To define the payload for the DTMF type.
- ◆ FAX Payload Type – To define the payload for the FAX type.
- ◆ FAXByPass Payload type – To define the payload for the FAX by Pass type.
- ◆ MODEMByPass Payload Type –To define the payload for the Modem by Pass type. (This is no use for the hardware as so far.)
- ◆ Redundancy Payload Type – To define the payload for the Redundancy type.
- ◆ MODEMRelay Payload Type – To define the payload for the FAX by Pass type. (This is no use for the hardware as so far.)

Please contact with your vendors if you want to configure these values.

3.11 IP Packet ToS

The Type of Service should be worked with the network router. The router will check all the packets if it support the TOS function. There is a field in the packet for the TOS value. This WEB is for users to configure these values to make the packets with the correct values for the TOS service from the gateway. (see figure 3.13)

The screenshot shows a web-based configuration interface for a VoIP Gateway. On the left is a vertical menu with various configuration options. The main area on the right is titled 'IP Packet TOS (Type of Service) Configuration'. It contains two input fields: 'Signalling Packet DSCP Code' and 'Media Packet DSCP Code', both with the value '0' entered. Below these fields is an 'OK' button.

VoIP Gateway Configuration Menu	
Network Interface	
H323 Configuration	
Line Configuration	
Phone Book Configuration	
Support Configuration	
System Configuration	
Voice Configuration	
Phone Configuration	
RTP Payload Type Configuration	
IP Packet ToS	
DDNS Configuration	
Prefix Configuration	
Password Configuration	
Version and Information	
ROM Upgrade	
Flash Clean	
Commit Data	

IP Packet TOS (Type of Service) Configuration	
Signalling Packet DSCP Code:	<input type="text" value="0"/>
Media Packet DSCP Code:	<input type="text" value="0"/>
<input type="button" value="OK"/>	

Figure 3.13: Support Function

According to the RFC 1349 document, the TOS value as following:

- 1000 – minimize delay
- 0100 – maximize throughput
- 0010 – maximize reliability
- 0001 – minimize monetary cost
- 0000 – normal service

These values are the Binary format. Please change to the Decimal and put these values in to the correct table.

3.12 DDNS Configuration

This version of firmware supports DDNS function. Before using this function, please have a DDNS account and some info from your DDNS server. Press the DDNS Configuration button to configure it. (see figure 3.14)

DDNS Device Configuration	
Status:	<input type="radio"/> Enable <input checked="" type="radio"/> Disale
Server:	<input type="text" value="members.dyndns.org"/>
Host Name:	<input type="text"/>
ID:	<input type="text"/>
Password:	<input type="text"/>
Check IP:	<input type="radio"/> On <input checked="" type="radio"/> Off
IP Check Server 1:	<input type="text" value="checkip.dyndns.org"/>
IP Check Server 2:	<input type="text" value="checkip.dyndns.org"/>
Check every:	<input type="text" value="0"/> <input type="radio"/> minutes <input type="radio"/> hours <input checked="" type="radio"/> Off
<input type="button" value="OK"/>	

Figure 3.14: Phone Book

- ◆ Status – To enable or disable this function.
 - ◆ Server – Enter the server address of your DDNS server.
 - ◆ Host Name – Your DDNS address.
 - ◆ ID – Your account.
 - ◆ Password – Your password.
- Please get this info from your DDNS server.**
- ◆ Check IP – Enable or Disable the IP Check function.
 - ◆ IP Check Server – Will check the endpoints ip address.
 - ◆ Check Every – The endpoint will check the server after a period.

3.13 Prefix Configuration

The Prefix function is using the drop and insert function (see figure 3.15).

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'Prefix Configuration' selected. The main area is titled 'Prefix Drop/Insert Configuration' and contains a table with four columns: Index, Prefix, Drop, and Insert. Below this table is a 'New Prefix' section with input fields for Index, Prefix, and Insert, and radio buttons for Drop (Enable/Disable). At the bottom are 'Add Data' and 'Delete Data' buttons.

Index	Prefix	Drop	Insert

Index	Prefix	Drop	Insert
<input type="text"/>	<input type="text"/>	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	<input type="text"/>

Figure 3.15: Prefix Configuration

- ◆ Index – The list number of the Phone Book.
- ◆ Prefix – The prefix number of the whole numbers that could be into this gateway
- ◆ Drop – The drop function. Enable this function by the Enable button; Disable this function by the Disable button.
- ◆ Insert – The insert function. Users could enter the digits that you want to insert in this number.
- ◆ Add Data – Press this button if users fill the entire information table above.
- ◆ Delete Date – If users want to delete the record from the table, enter the index number first and press this button. The record will be deleted.

This function is just like the Phone Book configuration. But it will make the drop and insert function in the GK routed mode. All the numbers into this gateway will check out the prefix table first and find out the destination in the Routing Table. There is an example about the configuration, please follow up these steps.

- 1 Press the Prefix Configuration button to enter the configuration table (see figure 3.15)
- 2 Enter the index number. Put the prefix numbers you will dial in the prefix table, enable (disable) the drop function and enter the numbers you want to insert (see figure 3.16)

The screenshot shows the 'VoIP Gateway Configuration Menu' on the left with various options. The main area displays the 'Prefix Drop/Insert Configuration' table and the 'New Prefix' form.

Prefix Drop/Insert Configuration			
Index	Prefix	Drop	Insert

New Prefix			
Index	Prefix	Drop	Insert
1	0	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	886

Buttons: Add Data, Delete Data

Figure 3.16: Configure the Prefix Table

The usage is as same as the drop, insert function of the Phone Book.

Input (Prefix)	Drop	Insert	Output
100	Disable	X	100
200	Disable	0	0200
300	Enable	X	X
400	Enable	500	500

3 Press the Prefix Configuration button to reload the configuration table (see figure 3.17)

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'Prefix Configuration' selected. The main area is titled 'Prefix Drop/Insert Configuration' and contains a table with four columns: Index, Prefix, Drop, and Insert. Below this table is a 'New Prefix' section, which is highlighted with a red border. This section contains the same four columns: Index (with value 1), Prefix (with value 0), Drop (with radio buttons for Enable and Disable, where Disable is selected), and Insert (with value 886). At the bottom of the 'New Prefix' section are two buttons: 'Add Data' and 'Delete Data'.

Prefix Drop/Insert Configuration			
Index	Prefix	Drop	Insert

New Prefix			
Index	Prefix	Drop	Insert
1	0	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	886

Add Data Delete Data

Figure 3.17: Configure the Prefix Table

4 Please Commit it and Reboot the system if the configuration is finished.

3.14 Password Configuration

There are two login accounts in this unit. One is the account root another is administrator. The default setting for these two accounts are empty. Users could define the passwords for these two accounts. Please get more info from the following description. (see figure 3.18)

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'Password Configuration' highlighted in red. The main content area is titled 'Password Configuration' in a blue header. It features a dropdown menu on the left with 'root' selected. To the right of the dropdown are three input fields: 'Current Password:', 'New Password:', and 'Confirm New Password:'. At the bottom of the form are two buttons: 'CHANGE' and 'ABORT'.

Figure 3.18 Password Configuration

- ◆ root – The password for the root account.
- ◆ administrator – The password for the administrator account. This account couldn't upgrade the 2M and boot rom file.
- ◆ Current Password – Enter the original password for the account.
- ◆ New Password – Enter the new password for the account.
- ◆ Confirm New Password – Enter the new password again.
- ◆ Change – This button will make the configurations saved and next time login will need the new password.
- ◆ Abort – Abort the configuration of the password changing.

3.15 Version and Information

Users could get more detail about the software version for all the parts in this web page. (see figure 3.19)

The screenshot displays a web-based configuration interface for a VoIP Gateway. On the left is a vertical menu with various configuration options. The 'Version and Information' option is highlighted in red. The main content area on the right is titled 'Version and Information' in a blue header. It contains a table with seven rows, each representing a different software component and its version.

Version and Information	
Boot Rom:	boot.104
Application Rom:	4fxo.118
DSP Application:	48302ce3.140
DSP Kernel:	48302ck.140
DSP Test Code:	483chitbin
Greetings:	greeting.102
Ask Pin:	askpin.102

Figure 3.19 Password Configuration

- ◆ Boot Rom – The version of the Boot Rom layer.
- ◆ Application Rom – The version of the Application Rom layer.
- ◆ DSP Application – The version of the DSP Application Rom layer.
- ◆ DSP Kernel – The version of the DSP Kernel layer.
- ◆ DSP Test Code – The version of the DSP Test Code layer.
- ◆ Greeting – The version of the Greeting file.
- ◆ ASK Pin – The version of the ASK Pin file.

3.14 ROM Upgrade

User could update the firmware just by the web configuration interface. There are two types for the upgrading procedure. One is using the TFTP server, another is using the FTP server. Please follow the step to update the gateway firmware version. (see figure 3.19)

The screenshot displays the 'VoIP Gateway Configuration Menu' on the left sidebar, with 'ROM Upgrade' highlighted. The main content area is titled 'ROM Configuration' and contains the following fields:

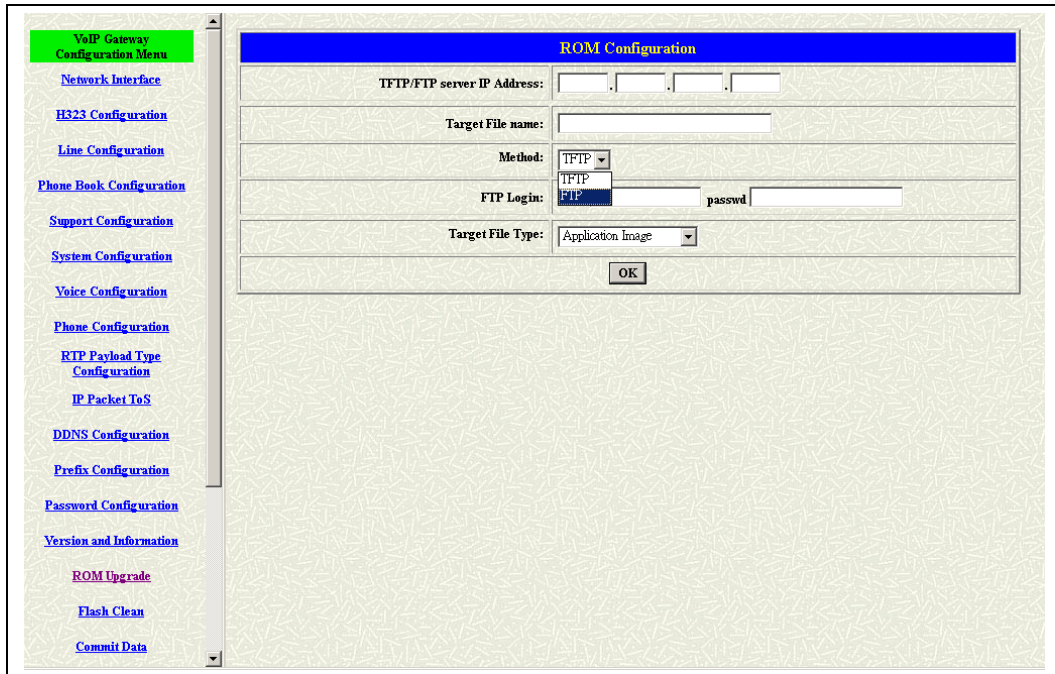
TFTP/FTP server IP Address:	<input type="text"/>
Target File name:	<input type="text"/>
Method:	<input type="text" value="TFTP"/>
FTP Login:	name <input type="text"/> passwd <input type="text"/>
Target File Type:	<input type="text" value="Application Image"/>
<input type="button" value="OK"/>	

Figure 3.19 ROM Upgrade

- ◆ TFTP/FTP server IP Address – Put the ip address of the TFTP or FTP server in this table.
- ◆ Target File name – Put the target file name in this table.
- ◆ Method – There are two upgrade methods for the upgrade procedure. One is TFTP and another is FTP. Please change to correct method for the upgrading.
- ◆ FTP Login – Please enter the login name and password for the FTP upgrade method. This is necessary if user change the method to the FTP.
- ◆ Target File Type – Please pick up the correct file type for upgrading. If the file name and the file type is unconformable, the upgrade procedure will be failed.
- ◆ OK – Press the OK button if all the info above are correct. The unit will start to download the firmware file from the TFTP or FTP and write to the flash after the downloading.

□ Updating the firmware by the FTP server □

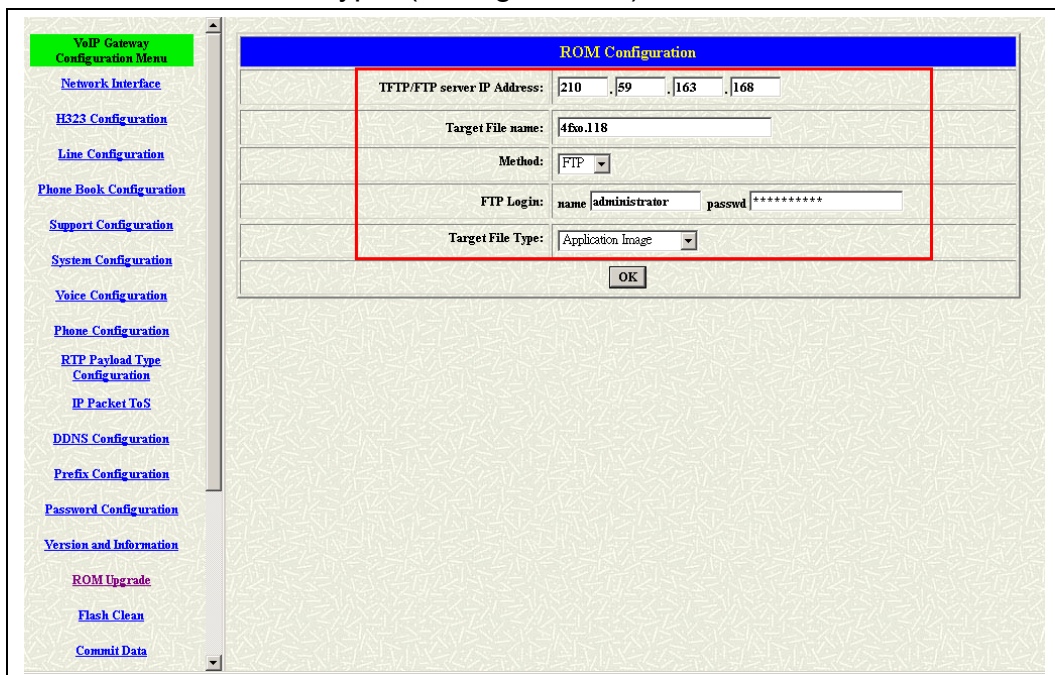
- 1 Pick up the “Rom Upgrade” button to enter the upgrading web page and switch to the FTP method. (see figure 3.20)



The screenshot shows the 'ROM Configuration' web page. On the left is a navigation menu with options: VoIP Gateway Configuration Menu, Network Interface, H323 Configuration, Line Configuration, Phone Book Configuration, Support Configuration, System Configuration, Voice Configuration, Phone Configuration, RTP Payload Type Configuration, IP Packet ToS, DDNS Configuration, Prefix Configuration, Password Configuration, Version and Information, ROM Upgrade (highlighted), Flash Clean, and Commit Data. The main content area is titled 'ROM Configuration' and contains the following fields: 'TFTP/FTP server IP Address' (empty), 'Target File name' (empty), 'Method' (dropdown menu with 'TFTP' selected), 'FTP Login' (with sub-fields 'name' and 'passwd', both empty), and 'Target File Type' (dropdown menu with 'Application Image' selected). An 'OK' button is at the bottom right of the form.

Figure 3.20 ROM Upgrade for FTP

- 2 Key in the IP address, the login name, password of your FTP server and the correct file name, file type. (see figure 3.21)



This screenshot shows the same 'ROM Configuration' web page as Figure 3.20, but with the following fields filled out: 'TFTP/FTP server IP Address' is '210.59.163.168', 'Target File name' is '4fx.118', 'Method' is 'FTP' (selected in the dropdown), 'FTP Login' has 'name' as 'administrator' and 'passwd' as '*****', and 'Target File Type' is 'Application Image'. A red rectangular box highlights the entire form area. The 'OK' button remains at the bottom right.

Figure 3.21: FTP information

- 3 Press the OK button to start the upgrade procedure.
- 4 Please follow the direction on the web site if the download procedure is finished.

□ Updating the firmware by the TFTP server □

- 1 Downloading the TFTP program from our web site and install it first.
Executing the TFTP program before you want to use the TFTP upgrade method.
- 2 Pick up the “Rom Upgrade” button to enter the upgrading web page and switch to the TFTP method. (see figure 3.22)

The screenshot shows a web interface for ROM Configuration. On the left is a navigation menu with links: VoIP Gateway Configuration Menu, Network Interface, H323 Configuration, Line Configuration, Phone Book Configuration, Support Configuration, System Configuration, Voice Configuration, Phone Configuration, RTP Payload Type Configuration, IP Packet ToS, DDNS Configuration, Prefix Configuration, Password Configuration, Version and Information, ROM Upgrade (highlighted in red), Flash Clean, and Commit Data. The main content area is titled 'ROM Configuration' and contains the following fields: TFTP/FTP server IP Address (a dotted box for IP input), Target File name (a text input field), Method (a dropdown menu with 'TFTP' selected), FTP Login (a dropdown menu with 'FTP' selected, followed by a 'passwd' label and a text input field), and Target File Type (a dropdown menu with 'Application Image' selected). An 'OK' button is located at the bottom right of the form.

Figure 3.22: ROM Upgrade for TFTP

- 3 Key in the IP address of your TFTP server, pick up the file type for your upgrade file and the correct file name for upgrading. (see figure 3.23)

ROM Configuration	
TFTP/FTP server IP Address:	210 . 59 . 163 . 168
Target File name:	2m4fxo.118
Method:	TFTP
FTP Login:	name: passwd:
Target File Type:	2M Boot Image
OK	

Figure 3.23: TFTP information

4 Press the OK button to start the upgrade procedure.

Please pay more attentions on the file name you used. The file name with the prefix “2m” is the complete firmware, it will take more times for the downloading and upgrading. About the file name without the prefix “2m”, it’s only for the application layer firmware. In fact, the latest version firmware is only changed in the application layer.

Please use the flash clean web to make all the configuration back to the default setting if the upgrade procedure was finished.

3.20 Flash Clean

Users could make all the configurations back to the default setting by this button. The password of the account and the networking configuration couldn't be back to the default setting by this command. (see figure 3.24)

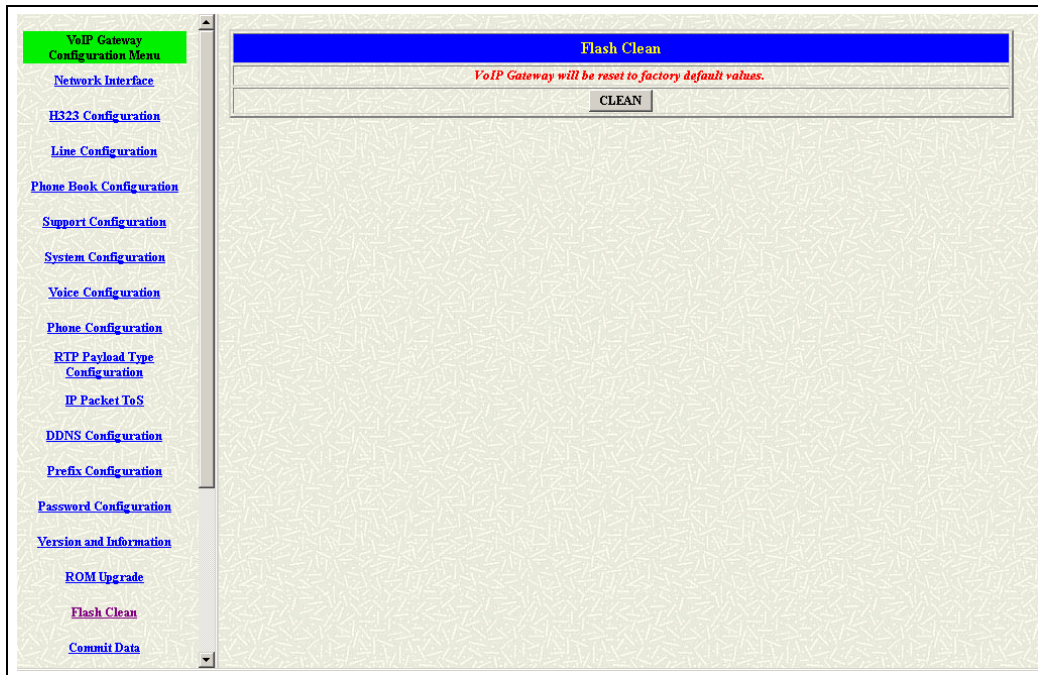


Figure 3.24: Hotline

3.21 Commit

Users could configure the information for the PPPoE connection in this page. After the configurations, the gateway will try to connect the PPPoE server and get the IP address from it. (see figure 3.25)

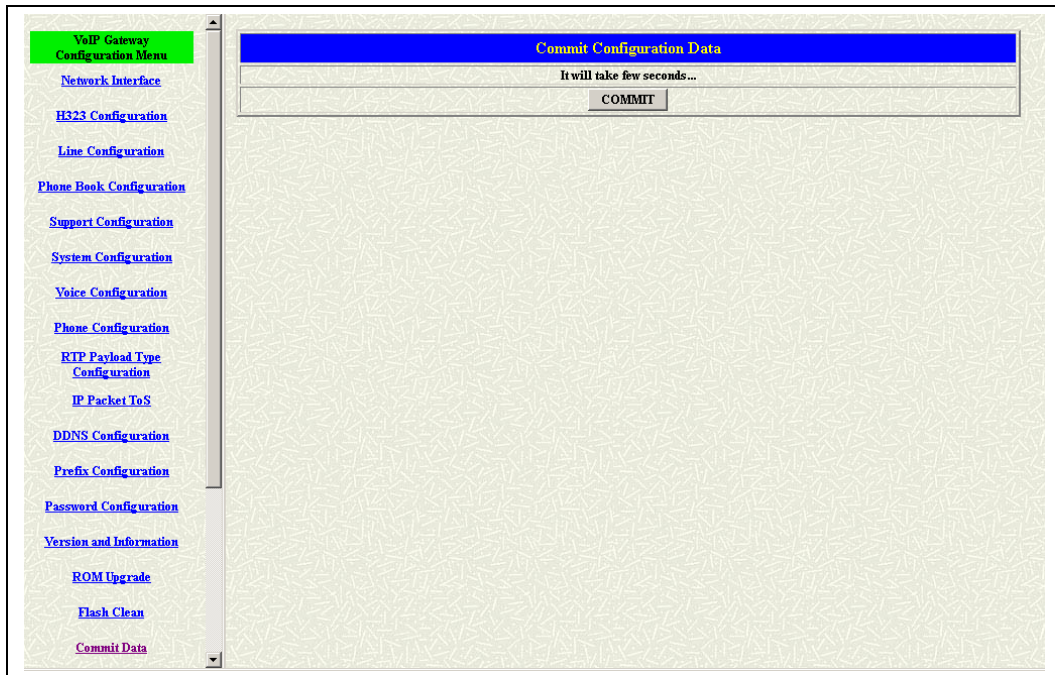


Figure 3.25: PPPoE Setting

3.22 Reboot System

This web page will restart the whole system. This is the necessary step for the changing the configurations and makes it executed. (see figure 3.26)

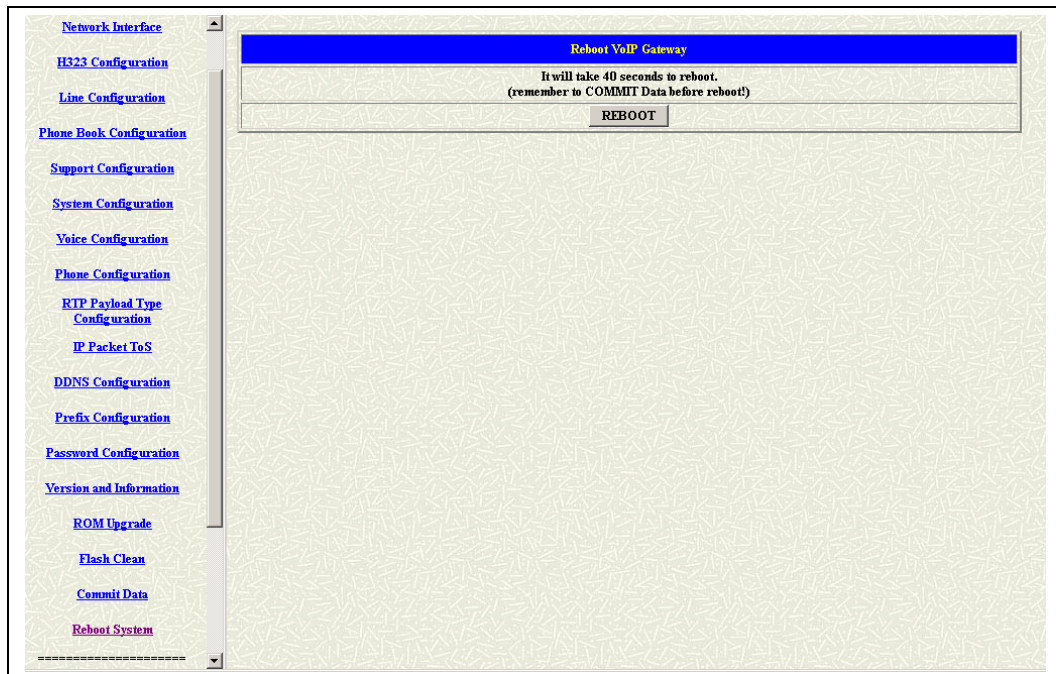


Figure 3.26: Reboot System

3.23 Tone Configuration

Users could configure the tone pattern of the gateway in this page. If the disconnect tone from PSTN side is match the one of the Busy tone table, the call will be dropped. (see figure 3.27)

Tone Configuration								
Disconnect Tone 1:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	620	480	8	8	25	25	0	0
Disconnect Tone 2:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	0	0	0	0	0	0	0	0
Disconnect Tone 3:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	0	0	0	0	0	0	0	0
Disconnect Tone 4:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	0	0	0	0	0	0	0	0
Remote Ring Back Tone 1:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	440	480	1	1	100	200	100	200
Remote Ring Back Tone 2:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	440	480	1	1	100	300	100	300
Remote Ring Back Tone 3:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	440	480	1	1	100	400	100	400
Remote Ring Back Tone 4:	Low(freq)	High(freq)	Low(lev)	High(lev)	On1	Off1	On2	Off2
	440	480	1	1	100	200	100	200

OK

Figure 3.27: Tone Configuration

- ◆ Disconnect Tone – To configure the frequency, level gain and on/off time for the busy tone from PSTN side. The busy tone supports 4 tables.
- ◆ Remote Ring Back Tone –To configure the frequency, level gain and on/off time for the ring tone from PSTN side. The gateway won't connect the calls if the ring tone value is incorrect.
- ◆ Dial Tone – To configure the frequency, level gain and on/off time for the dial tone.
- ◆ Ring Back Tone – To configure the frequency, level gain and on/off time for the dial tone.

This WEB Configuration is only support the FXO interface.

3.24 Routing Table

Routing Table is a rule to define the destination of the calls you make. You could define the rules by the number you dial or by the ports. The Routing Table button will show you the configuration table. (see figure 3.28)

In fact, there are three directions of the incoming calls (from IP or FXO side). The explanation of the default routing is as below:

The location with the incoming calls	The location with the destination	The explanation
IP (Default)	Fxo	The destination will be the FXO port when the calls from the IP side without any define rules.
Fxo (Default)	IP	The destination will be the IP side when the calls from the FXO port without any define rules.

The screenshot displays the 'Routing Table Configuration' window. On the left is a sidebar with various configuration links. The main area contains two tables. The top table, 'Routing Table Configuration', has 7 columns: Index, Prefix, Destination, E.164, Min Digits, Max Digits, and Hunt Method. It shows two default entries: 'IP Default' pointing to 'FXO' and 'FXO Default' pointing to 'IP'. The bottom table, 'New Route', is a form for adding new entries with similar columns and radio button options for 'Default' and 'Destination'. At the bottom of the form are buttons for 'Add Data', 'Delete Data', and 'Change Default'.

Figure 3.28: Routing Table

- ◆ Index – The list number of the Route Table.
- ◆ Default – For change the default setting. Users have to pick the direction for the default setting changed.
- ◆ Prefix – The prefix number for the dialed digits. The call will be followed this

route table if the prefix number was matched.

- ◆ Destination – To decide the destination for this route table.
- ◆ E.164 – The E.164 number of the destination.
- ◆ Mini Digits – The mini digits requirement for this route table.
- ◆ Max Digits – The max digits requirement for this route table.
- ◆ Hunt Method – Enable the Hunt Group function and pick up the hunt type.
 - NONE : Disable the Hunt Group function.
 - GROUP : The Hunt Group function will working for the same group.
User could configure the group in the Line Configuration table.
 - ALL : The Hunt Group will working for the same type.

None – Disable this function

Group – The call will search other ports to be the destination with the **same group** if the origin destination is busy.

All – The call will search other ports to be the destination with the **same type** if the origin destination is busy.

About the Group setting, Please get more info from the Line Configuration.

- ◆ Add Data – Add a new record for the route table.
- ◆ Delete Data – Delete a record for the route table.
- ◆ Change Default – Change default route table.

3.24.1 Change the default routing

Please follow up the steps if you want to change the default routing:

- 1 Pick up the side for the incoming calls and define the destination of this side.
Press the Change Default to save the data.

The screenshot shows the 'Routing Table Configuration' interface. On the left is a sidebar with navigation links: System Configuration, Voice Configuration, Phone Configuration, RTP Payload Type Configuration, IP Packet ToS, DDNS Configuration, Prefix Configuration, Password Configuration, Version and Information, ROM Upgrade, Flash Clean, Commit Data, Reboot System, FXO Gateway Only, Tone Configuration, Routing Table (highlighted), and FXO Password. The main area contains two tables. The top table, 'Routing Table Configuration', has columns: Index, Prefix, Destination, E.164, Min Digits, Max Digits, and Hunt Method. It shows 'IP Default' with Destination 'FXO' and 'FXO Default' with Destination 'IP'. The bottom table, 'New Route', has the same columns and includes radio buttons for Default (FXS, FXO, IP) and Destination (FXS, FXO, IP). The 'Change Default' button is highlighted with a red box.

Routing Table Configuration						
Index	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
IP Default		FXO	x			
FXO Default		IP	x			

New Route							
Index	Default	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
	<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP		<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP				<input checked="" type="radio"/> NONE <input type="radio"/> GROUP <input type="radio"/> ALL

Buttons: Add Data, Delete Data, **Change Default**

Figure 3.29: Change The Default Setting

2 The default setting is changed after you press the Change Default button.

Please press the Routing Table button again to show the new setting.

The screenshot shows the same 'Routing Table Configuration' interface. The 'Routing Table Configuration' table now has the 'FXO Default' row highlighted with a red box, indicating it is the active default. The 'New Route' form and buttons remain the same as in the previous figure.

Routing Table Configuration						
Index	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
IP Default		FXO	x			
FXO Default		FXO	x			

New Route							
Index	Default	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
	<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP		<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP				<input checked="" type="radio"/> NONE <input type="radio"/> GROUP <input type="radio"/> ALL

Buttons: Add Data, Delete Data, Change Default

Figure 3.30: The Default Setting Changed

3 Please Commit it and Reboot the system if the configuration is finished.

3.24.2 Add a new Routing Table

1 The default setting is changed after you press the Change Default button.

Please press the Routing Table button again to show the new setting.

The screenshot shows the 'Routing Table Configuration' window. On the left is a sidebar with various configuration options. The main area contains a table for routing configurations and a 'New Route' dialog box at the bottom.

Routing Table Configuration

Index	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
IP Default		FXO	x			
FXO Default		IP	x			

New Route

Index	Default	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
1	<input checked="" type="radio"/> FXS <input type="radio"/> FXO <input type="radio"/> IP	8	<input type="radio"/> FXS <input checked="" type="radio"/> FXO <input type="radio"/> IP	1001	1	10	<input type="radio"/> NONE <input type="radio"/> GROUP <input checked="" type="radio"/> ALL

Buttons: Add Data, Delete Data, Change Default

Figure 3.31: Add a new routing table

2 Press Add Data button to save the configuration and press the Routing Table button again to reload the configuration.

The screenshot shows the 'Routing Table Configuration' window after the new route has been added. The 'New Route' dialog box is no longer visible, and the routing table now includes the new entry.

Routing Table Configuration

Index	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
IP Default		FXO	x			
FXO Default		IP	x			
1	8	FXO	1001	1	10	ALL

New Route

Index	Default	Prefix	Destination	E.164	Min Digits	Max Digits	Hunt Method
	<input checked="" type="radio"/> FXS <input type="radio"/> FXO <input type="radio"/> IP		<input type="radio"/> FXS <input type="radio"/> FXO <input type="radio"/> IP				<input checked="" type="radio"/> NONE <input type="radio"/> GROUP <input type="radio"/> ALL

Buttons: Add Data, Delete Data, Change Default

Figure 3.32: New Special Routing

The explanation of figure 3.32 is as below:

When the user dial 8 with the first digit of the numbers from FXO or IP side. And the numbers you dial is between 1 and 10 digits. If this call matches the rule, it will be transferred to the FXO port whose E164 number is 1001.

3 Please Commit it and Reboot the system if the configuration is finished.

3.25 FXO Password

You will get the IVR if you make calls from PSTN side or from IP side. The IVR will ask you the password you set, and you could make other calls to IP side or PSTN side if the password you type is correct. Please press the FXO Password button to configure the password (see figure 3.33)

System Configuration

- [System Configuration](#)
- [Voice Configuration](#)
- [Phone Configuration](#)
- [RTP Payload Type Configuration](#)
- [IP Packet ToS](#)
- [DDNS Configuration](#)
- [Prefix Configuration](#)
- [Password Configuration](#)
- [Version and Information](#)
- [ROM Upgrade](#)
- [Flash Clean](#)
- [Commit Data](#)
- [Reboot System](#)
- =====
- [FXO Gateway Only](#)
- [Tone Configuration](#)
- [Routing Table](#)
- [FXO Password](#)
- =====

FXO Password Configuration

Index	Password	Direction

New Password

Index	Password	Direction
<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/> Out <input type="radio"/> In <input type="radio"/> Both
<input type="button" value="Add Data"/> <input type="button" value="Delete Data"/>		

Figure 3.33: FXO Password

- ◆ Index – The number of this table.
- ◆ Password – The password you set.
- ◆ Direction – Playing the IVR to PSTN, IP or both side.
(Out – The calls from IP side ; In – The calls from PSTN side)

4. Command List

4.1 Hyper Terminal Setting

A terminal emulator is needed when using RS-232 port to configure Gateway. There are kinds of terminal emulator software. Here, we use Microsoft HyperTerminal to depict how to set up terminal emulator:

1. Execute the *Hyper Terminal* program, and then the following windows will pop-up on the screen. (START – Program files – Accessories – Communication – Hyper Terminal)

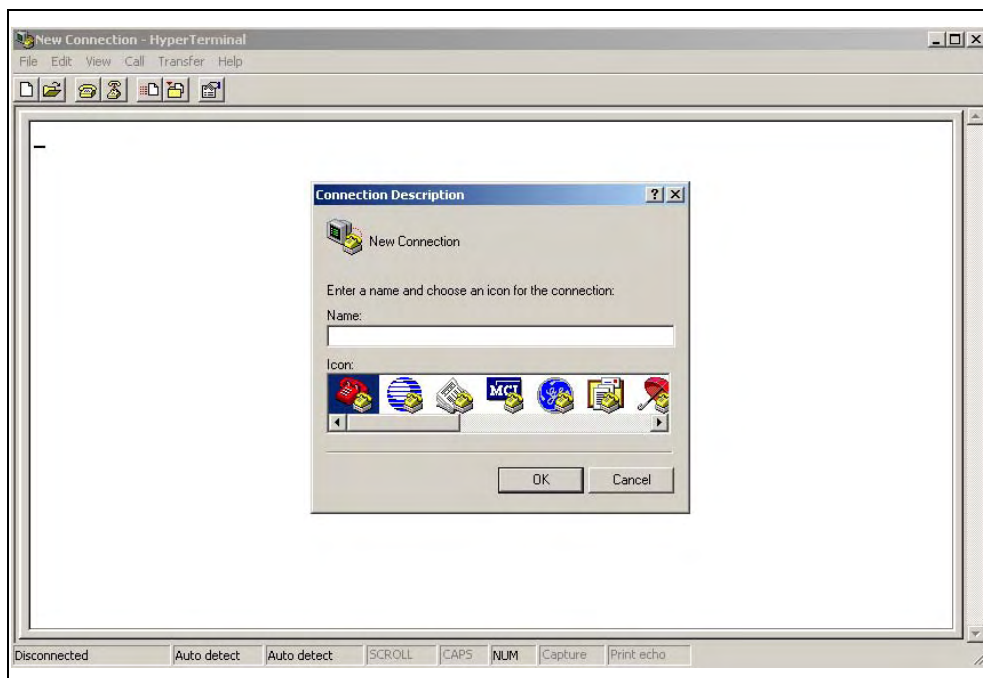


Figure 4.1: Hyper Terminal

2. Define a name such as 'wg38' for this new connection.



Figure 4.2: Edit the name of the connection

3. After pressing OK button, the next window appear, and then choose **COM1/2 Port**, which you are going to use.

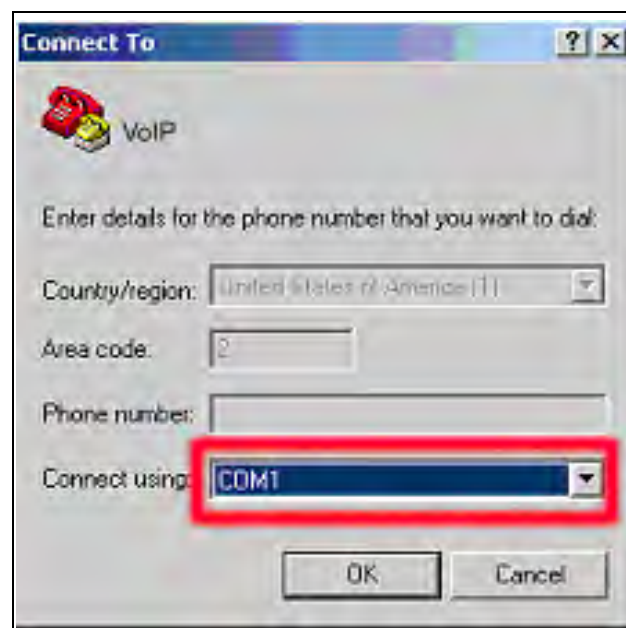


Figure 4.3: Pick up the right interface to use

4. Configure the COM Port Properties as following:
 - ◆ Bits per second: 9600
 - ◆ Flow control: None

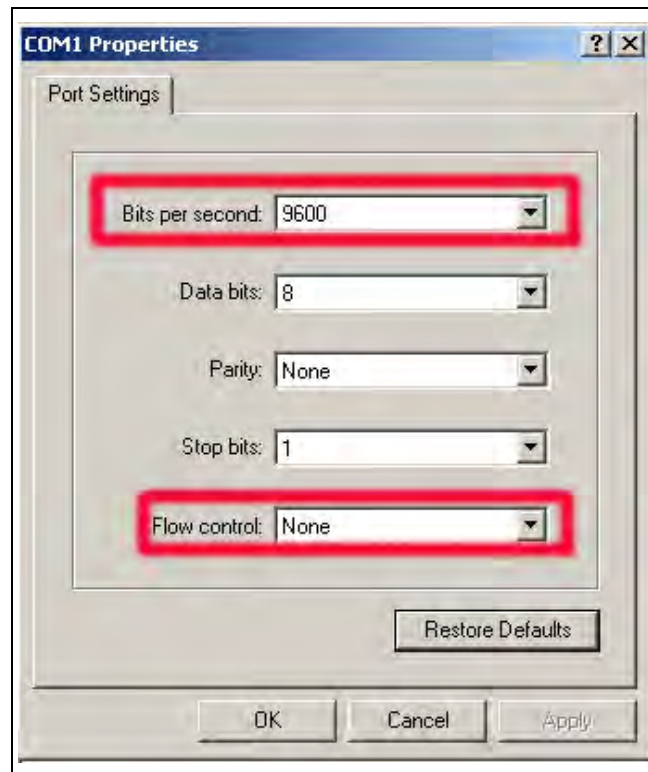


Figure 4.4: Configure the right Bps and control

5. Press 'OK' button, and then start to configure Gateway.

4.2 Command List

4.2.1 [help]

Type **help** or **man** or **?** to list all the available command.

usr/config\$?

help help/man/? [command]

quit quit/exit/close

debug show debug message

reboot reboot local machine

flash clean configuration from flash rom

commit commit flash rom data

ifaddr internet address manipulation

time show current time

ping test that a remote host is reachable

sysconf System information manipulation

h323 H.323 information manipulation

line line information manipulation

prefix Prefix drop/insert information manipulation

pbook Phone book information manipulation

voice Voice information manipulation

support Special Voice function support manipulationh323

route Routing information manipulation

tone Setup of disconnect tone and remote ring back tone

fxopwd Setup of FXO password

record Record voice for greeting and ask pin code

tos IP Packet ToS (Type of Service)values

ddns Dynamic DNS update manipulation

pt DSP payload type configuration and information

rom ROM file update

passwd Password setting information and configuration

usage: help [command]

4.2.2 [quit]

Type **quit** will quit the FXO GateWay configuration mode. And turn back

to login prompt.

```
usr/config$ quit
```

```
Disconnecting...
```

```
login:
```

Note: *It is recommended that type the “quit” command before you leave the console. If so, FXO GateWay will ask password again when next user connects to console port.*

4.2.3 [debug]

Open debug message will show up specific information while FXO GateWay is in operation. After executing the debug command, it should execute command **debug -open** as well. One example is demonstrated below.

```
usr/config$ debug -add h323 vp
```

```
usr/config$ debug -open
```

Parameters Usage:

- | | |
|---------|------------------------------------|
| -status | Display the enabled debug flags. |
| -add | Add debug flag. |
| | -- h323 : h323 related information |
| | -- vp : voice related information |
| -delete | Remove specified debug flag. |
| -open | Start to show debug messages. |
| -close | Stop showing debug messages. |

The debug command was designed for the Technical Engineer. Please contact with your vendor before you are using this command.

4.2.4 [reboot]

After **commit** command, type **reboot** to reload FXO GateWay in new configuration. The procedure is as below:

usr/config\$ reboot

Attached TCP/IP interface to cpm unit 0

Attaching interface lo0...done

AC4804[0] is OK

AC4804[1] is OK

AC4804[2] is OK

Successful

Initialize OSS libraries...OK!

open stack successful

cmInitialize succeed!

GK mode selected.

login:

4.2.5 [flash]

This command will clean the configuration stored in the flash rom and reboot FXO GateWay in factory default setting.

Parameter Usage:

-clean clean all the user-defined value, and reboot FXO GateWay in factory default mode.

Note: It is recommended that use “flash –clean” after application firmware id upgraded.

Warning: Once users execute **flash –clean**, all the configurations of FXO GateWay will be cleaned. This can only be executed by user who log in with **root**

4.2.6 [commit]

Save changes after configuring the FXO GateWay.

```
usr/config$ commit
```

This may take a few seconds, please wait....

Commit to flash memory ok!

```
usr/config$
```

Note: Users should use **commit** to save modified value, or they will not be activated after system reboot.

4.2.7 [ifaddr]

Configure and display FXO GateWay network information.

```
usr/config$ ifaddr
```

LAN information and configuration

Usage:

```
ifaddr [-print]\[-dhcp used]\[-sntp mode [server]]
```

```
ifaddr [-ipsharing used [deviceAddr]]\[-cmcenter ip address]
```

```
ifaddr [-ip ipaddress] [-mask subnetmask] [-gate defaultgateway]
```

- print Display LAN information and configuration.*
 - mode Specify WAN IP mode (0=Static, 1=DHCP, 2=PPPoE)*
 - ip Specify ip address.*
 - mask Set Internet subnet mask.*
 - gate Specify default gateway ip address*
 - dns Set DNS server IP address. Provide set DNS primary and secondary IP address
 (1=primary IP address, 2=secondary)*
 - http Set HTTP server port.*
 - sntp Set SNTP server mode and specify IP address.*
 - DNS Set DNS sever IP address*
 - timezone Set local timezone.*
 - ipsharing Specify usage of an IP sharing device and specify IP address.*
 - ipchange Replace IP address if the shared IP is changed (0=Disable,
 1=Enable)*
-

-id PPPoE connection user name
-pwd PPPoE connection password
-reboot Reboot after remote host disconnection in PPPoE mode
(0=No Reboot, 1=Yes Reboot)

Note:

Range of ip address setting (0.0.0.0 ~ 255.255.255.255).

Example:

ifaddr -mode 0
ifaddr -ip 210.59.163.202 -mask 255.255.255.0 -gate 210.59.163.254
ifaddr -dns 1 168.92.1.1 -dns 2 168.95.1.2
ifaddr -http 80
ifaddr -sntp 1 210.59.163.254
ifaddr -ipsharing 1 210.59.163.254
ifaddr -ipchange 1
ifaddr -id 123456@hinet.net -pwd 123456 -reboot 1
ifaddr -timezone 8
ifaddr -dns primary secondary

usr/config\$

Parameters Usage:

-print print current IP setting
-mode Define the network mode for this unit.
-ip assign IP address for Gateway
-mask assign internet subnet mask
-gate assign IP default gateway
-dns configure the IP address for the DNS server

usr/config\$ ifaddr -dns 1 123.123.123.123

usr/config\$ ifaddr -dns 2 123.123.123.125

-http Change the http port. User can change default HTTP port (80) to another one for security or NAT application.
-timezone set local time zone according to GMT
-ipsharing Just put the static IP address for the WAN port of the IP sharing if the gateway is behind this IP sharing device.

```
usr/config$ ifaddr -sntp 1 10.1.1.1
```

While 10.1.1.1 stands for SNTP server's IP address.

-ipchange If the unit is behind the IP sharing device and the IP address for the WAN port of that IP sharing is using the dynamic IP address. This function has to be enabled.

```
usr/config$ ifaddr -ipchange 1
```

Please contact with your vendor before you are using the ipsharing and ipchange function.

-id This id is for the user name of the PPPoE usage.
-pwd This password is for the user name of the PPPoE usage.
-reboot If the connection disconnected by the ISP, the unit will reboot and get the ip again.

4.2.8 [time]

When SNTP function of FXO GateWay is enabled and SNTP server can be found as well, type **time** command to show current network time.

```
usr/config$ time
```

```
Current time is THU JUL 01 11:46:01 2004
```

Please make sure about that the SNTP server was configured before you used this command.

4.2.9 [ping]

Use **ping** to test whether a specific IP is reachable or not.
For example: if 192.168.1.2 is not existing while 210.63.15.32 exists. Users will have the following results:

```
usr/config$ ping 210.54.23.129
```

```

PING 210.54.23.129: 56 data bytes
no answer from 210.54.23.129
usr/config$ ping 192.168.4.121
PING 192.168.4.121: 56 data bytes
64 bytes from 192.168.4.121: icmp_seq=0. time=5. ms
64 bytes from 192.168.4.121: icmp_seq=1. time=0. ms
64 bytes from 192.168.4.121: icmp_seq=2. time=0. ms
64 bytes from 192.168.4.121: icmp_seq=3. time=0. ms
----192.168.4.121 PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 0/1/5

```

4.2.10 [sysconf]

This command displays system information and configurations.

```

-----
usr/config$ sysconf

```

System information and configuration

Usage:

```

sysconf [-print] [-idtime digit] [-keypad used] [-prefixsw used]
        [-prefixdisab used] [-usrdefprefix digits] [-codec used]
        [-gwprefix used] [-eod used] [-ring on_time off_time] [-rba digit]

```

<i>-print</i>	<i>Display system overall information and configuration.</i>
<i>-idtime</i>	<i>Inter-Digits time (1~10 sec).</i>
<i>-keypad</i>	<i>Select DTMF type: 0=In-band, 1=H.245 Alphanumeric, 2=H.245 SignalType, 3=Q.931 UserInfo. 4=RFC2833.</i>
<i>-prefixsw</i>	<i>User defined local zone prefix switch (0=OFF, 1=ON).</i>
<i>-prefixdisab</i>	<i>Local zone prefix disable character (one character from 0~9, *, or NONE('-' key)).</i>
<i>-usrdefprefix</i>	<i>User defined local zone prefix (0 ~ 20 digits).</i>
<i>-codec</i>	<i>Codec select method (0=Caller, 1=Master).</i>

<i>-gwprefix</i>	<i>Drop gateway prefix when call from IP (0=Keep, 1=Drop).</i>
<i>-eod</i>	<i>End of dial (0=Disable, 1=Enable).</i>
<i>-ring</i>	<i>The ring time for ring detection.(Unit:ms)</i>
<i>-rba</i>	<i>Ring before answer.(For 1 ~ 10)</i>
<i>-fxotype</i>	<i>FXO type.(0=Normal, 1=Force 2nd dial)</i>

Example: sysconf -idtime 5

Example: sysconf -ring 500

Parameters Usage:

- print print out all current settings
- idtime set the duration(in second) of two pressed digits in dial mode as timed out. If after the duration user hasn't pressed next number, it will dial out all number pressed. (1-10 seconds)
- keypad DTMF replay type. When value is "0", Gateway will transfer DTMF signal via In-Band type, "1" via H.245 UII Alphanumeric, "2" via H.245 UII Signal Type, and "3" via Q.931 UserInfo, and "4" via RFC2833 type. Users can adjust the value according to various applications.
- prefixsw switch on/off prefix function. If user enables prefix function, once user dials out, gateway will automatically add prefix number before number user dialed.
- prefixdisab set disable key (0,1,~,9, *) to disable the prefix function in this current call. For example, if user has set prefix as 100, and wants to dial out 100123, user can only press 123, to dial out 100123. However, if user wants to dial 123 without prefix, user can press prefix disable key, for example "*", user can press "**", then dial 123, gateway will dial out 123 without adding prefix.
- usrdefprefix define prefix number.

Note: User can also define IP address here in P2P mode, once user press "#", Gateway will call out this IP address.

Note:

"refixsw", "prefixdisab", "usrdefprefix" commands must work together.

- codec set who is the one to determine voice codec during negotiation. 0 is caller will determine the codec, and 1 is mater will determine the codec. (During negotiation 2 endpoints will compare gateway type

level to determine who is master.)

-gwprefix drop or keep gateway prefix . “0” means when gateway has incoming call from IP side, it will not drop prefix before searching for callee number. “1” means when gateway has incoming call from IP side, it will drop prefix before searching for called number.

Note:

1. *If user wants to implement one-stage dialing in FXO Line, this function must be enabled, and user has to dial prefix number (instead of Line number of FXO Line)+ PSTN number to make a call to PSTN side connected with FXO Line.*
2. *After gateway-prefix-drop function is enabled, user must remember to re-configure line number of FXS Line, because line number of FXS Line must remove prefix number. For example, origin line number of FXS line is 1001, prefix is 100, since prefix number will be drop, once gateway has incoming call 1001, after drop gateway prefix 100, it will search line number “1”. So line number must be set as “1”.*

-eod It will transfer the DTMF in “#” if users disable the end of dial function. Users have to press the key pad in “#” if the end of dial function is enable.

-ring ring time for ring detection(in ms). When Gateway has incoming call from PSTN side to FXO port, Gateway will determine it is a ring but not noise only if it is longer than this ring time.

Note:

In Taiwan the ring time of PSTN usually is 1000ms, so if user set ring time longer than 1000ms, FXO port may not be able to pick up the call from PSTN side.

-rba Users could define the ring time if the calls coming from the PSTN side. This support 1 to 10 ring times.

-fxotype It's for the 2nddial function. Any calls will be two-stage-dialing if user enable this function.

4.2.11 [h323]

Phone Book function allows users to define their own numbers, which mapping to real IP address. It is effective only in peer-to-peer mode. When adding a record to Phone Book, users do not have to reboot the machine, and the record will be effective immediately.

usr/config\$ h323

H.323 stack information and configuration

Usage:

*h323 [-print][-mode used][-gk IP address][-algk IP address][-gwtype used]
[-dfgw IP address][-prefix number][-line number][-passwd number]
[-alias h323id][-display information][-gkid ID][-gkdis used]*

<i>-print</i>	<i>Display H.323 stack information and configuration.</i>
<i>-mode</i>	<i>Configure as Gatekeeper mode or Peer-to-Peer mode (0=Gatekeeper, 1=Peer-to-Peer).</i>
<i>-gk</i>	<i>Gatekeeper IP address.</i>
<i>-algk</i>	<i>Second Gatekeeper IP address.</i>
<i>-gwtype</i>	<i>Gateway Type (0=Terminal, 1=Gateway).</i>
<i>-dfgw</i>	<i>Default Gateway IP address.</i>
<i>-prefix</i>	<i>Prefix number.</i>
<i>-line1</i>	<i>Line 1 E.164 number.</i>
<i>-line2</i>	<i>Line 2 E.164 number.</i>
<i>-line3</i>	<i>Line 3 E.164 number.</i>
<i>-line4</i>	<i>Line 4 E.164 number.</i>
<i>-passwd</i>	<i>H.235 security password.</i>
<i>-alias</i>	<i>IP side registered H323 ID.</i>
<i>-display</i>	<i>String representing display information for reporting to the called party.</i>
<i>-gkid</i>	<i>Gatekeeper ID.</i>
<i>-gkdis</i>	<i>Gatekeeper discovery (0=Off, 1=On).</i>
<i>-ttl</i>	<i>RAS TTL time (0~3600 second).</i>
<i>-rtp</i>	<i>RTP port number (1024~65532).</i>

-gkfind Gatekeeper finding port (1024~65535).
-gkras Gatekeeper RAS port (1024~65535).
-h225 H225 ras port (1024~65535).
-q931 H225 call signal port (1024~65535).
-dstq931 Destination H225 call signal port (1024~65535).
-range Dynamically allocated port range (1024~19999).
-respto Max waiting time for 1st response to a new call (1~200).
-connto Max waiting time for call establishment after receiving 1st response of a new call (1~20000).

Note:

Range of IP address setting (0.0.0.0 ~ 255.255.255.255).

Example:

h323 -gk 210.59.163.171 -line1 70 -line2 71 -line3 72 -line4 73
h323 -alias Your_Alias_Name -gkid GK -gkdis 1 -passwd 1234
h323 -range start 1024 end 19999 pbook -add name Test ip 210.59.163.202 e164 1001
pbook -insert 3 name Test ip 210.59.163.202 e164 1001
pbook -delete 3
pbook -search ip 192.168.4.99
pbook -modify 3 name Test ip 210.59.163.202 e164 1001

usr/config\$

Parameter Usages:

-print print current h323 related settings
-mode alternatives for gatekeeper or peer-to-peer mode (0=gatekeeper mode; 1=peer-to-peer mode). If users select gatekeeper mode, a valid gatekeeper is needed when Gateway is in operation.

usr/config\$ h323 -mode 1 (peer to peer mode)

-gk to assign gatekeeper's IP address when Gateway is in gatekeeper mode.
-algk assign second gatekeeper's IP address as redundancy. If Gateway fails to register to main GK for 10 time, it will try to register to alternative GK.
-gwtype gateway type has two kinds, gateway and terminal. Gateway type – device will register as H.323 defined Gateway, user has to

define [prefix] in next command.

Terminal type – device will register as H.323 defined Terminal, [prefix] command is not necessary.

- dfgw default gateway is applied under **Peer-to-Peer mode**. User defines a constant default gateway IP address, then any number dialed if the number is not listed in phone book table will pass forward to this IP Address.
- prefix assign Gateway prefix number, as well as the registered number on the Gatekeeper.
- line1 assign Line1 number.
- line2 assign Line2 number.
- line3 assign Line3 number.
- line4 assign Line4 number.

Note:

User can also set “x” in line number to disable the port. If the port is disabled, it can only receive calls but not calling out.

Note:

1. Line1~Line4 number must follow the prefix number if device is configured as **Gateway Type**. For example, if prefix number is 999, then the line1 & line2's number are 9991 & 9992.
 2. If Gateway is configured as **Terminal Type**, each line will register to GK with it's own number, prefix number is not needed.
 3. **No matter in GK or P2P mode, user only needs to dial line number to reach the local port.** For example, in P2P mode, user wants to dial from FXS TEL1 to FXO Line1, only need to dial number of line2.
-

- passwd set H.235 security password. If user's GK need H.235 security token password to authenticate, user have to input token password in this command. (please refer to your retailer of GK for information about token password if they implement this function in their GK)
- alias H.323 ID. If in gatekeeper mode, this h.323 ID must be different from others who are registering to the same gatekeeper.
- display An addition name for special application if the calling party needs

- this to recognize the called party.
- gkid set GateKeeper name for GateKeeper discovery. When Gateway send out GateKeeper discovery message will search GateKeeper with this GateKeeper name. (please refer to -gkdis)
 - gkdis set auto discovery function on or off. If this function is enabled and IP address of GateKeeper is set as 255.255.255.255, LAN Phone will multicast to search a GateKeeper on network with configured GateKeeper name (please refer to -gkid); if IP address of GateKeeper is set, before LAN Phone register to the assigned GateKeeper, it will send out GRQ(GateKeeper Request) message with configured GateKeeper name to GateKeeper first.
 - ttl to set timer for TTL(Time To Live). Gateway would send RRQ, with keepAlive, to gatekeeper periodically according to TTL timer.
 - rtp to allocate RTP port range—NOT RECOMMENDED. This may be used when RTP port range conflicts with Firewall policy. (each port of Gateway use 2 RTP ports)
 - gkfind gatekeeper finding port. Port number, which Gateway uses it to discover a gatekeeper. Default value is 1718.
 - gkras to set default gatekeeper RAS port number. Default value, 1719, is well-known port for RAS communication.
 - h225 to specify H.225 RAS port number.
 - q931 to specify H.225 signal port number.
 - dstq931 to specify destination H.225 signal port number.
 - range To allocate port range (1500-65535) Gateway may use it.
 - respto Maximum response time out
 - connto Maximum connection time out

Note: From –rtp to –connto commands are for advanced users, please do not change the default settings if not necessary.

4.2.12 [line]

This command is for configure each line parameters of Gateway.

-----u
 sr/config\$ line

Gateway line information and configuration

Usage:

line [-print][-config number [hunt number][hotline number]

line -print Gateway line information.
-config Set Gateway line information.
hunt: Hunting group.
hotline: Hot line configuration.

Example:

line -config 1 hunt 1 hotline 1003

usr/config\$

Parameter Usages:

- print print out all current settings of line
- config determine which line to configure
- hunt set hunting group flag of each line. User can assign different hunt group number represent different hunt group. For example, if user assigns FXS TEL1 as hunt group 1, and FXS TEL2 as hunt group 2, they will be determined as 2 different groups. On the other hand, if user assigns FXS TEL1 as hunt group 1, and FXS TEL2 as hunt group 1 too, when having incoming call to FXS TEL1, which is busy, this call will be route to FXS Line2.

Note: FXO Lines and FXS TELs are treated as 2 different groups, so even they are in the same hunt group, call will only be routed to the same FXS or FXO Lines.

- hotline set hotline table. The Hotline Mode is applied in limited two channels. User just picks up the phone set of one FXS TEL or calls in one FXO line, and gateway will automatically dial out a phone number. In the other hand, user will hear ring back tone or dial tone immediately depended on configurations of destination device.

Note: This function can both work in GK or P2P mode.

GK Mode Usage:

Set gateway under gk mode.

Create a Hotline table with “**line**” command.

usr/config\$ line -config 1 hotline 1001

In this example means: if user calls in FXO Line1, gateway will

automatically dial out “1001”.

P2P Mode Usage:

Set gateway under P2P mode.

Create phone book table with “**pbook**” command.

Create a Hotline table with “**line**” command.

```
usr/config$ pbook -add name test ip 10.1.1.1.e164 1001
```

```
usr/config$ line -config 1 hotline 1001
```

In this example means: if user calls in FXO Line1, gateway will automatically dial out IP address of “1001”.

4.2.13 [prefix]

This command is for make rules for drop or insert prefix digits.

```
usr/config$ prefix
```

Prefix drop/insert information and configuration

Usage:

prefix [-print]

[-add [prefix number][drop used][insert digits]]

[-modify index [prefix number][drop used][insert digits]]

[-delete index number]

prefix -print Display drop/insert information.

-add Add new prefix drop/insert information

prefix : The prefix of dialed number.

drop : Drop prefix (0=Disable, 1=Enable).

insert : 1~10 digits.

-modify Modify prefix drop/insert information

index : The prefix index number record.

prefix : The prefix of dialed number.

drop : Drop prefix (0=Disable, 1=Enable).

insert : 1~10 digits.

-delete Delete prefix index number record.

Example:

```

prefix -print
prefix -add prefix 100 drop 1 insert 2000
prefix -add prefix 100 drop 1
prefix -add prefix 100 drop 0 insert 200
prefix -modify 1 prefix 100 drop 0 insert 300
prefix -delete 1

```

```
usr/config$
```

Parameter Usages:

- add add a rule to drop or insert prefix digits of incoming call. (**prefix –add prefix “prefix number” drop 0/1 insert “insert number”**)
- delete delete a rule to drop or insert prefix digits of incoming call. (**prefix –delete prefix “prefix number”**)
- modify modify a rule to drop or insert prefix digits of incoming call. (**prefix –modify prefix “prefix number” drop 0/1 insert “insert number”**)
- prefix set which prefix number to implement prefix rule.
- drop enable or disable drop function. If this function is enabled, Gateway will drop prefix number on incoming call.
- insert set which digit to insert on incoming call.

4.2.14 [pbook]

Phone Book function allows users to define their own numbers, which mapping to real IP address. It is effective only in peer-to-peer mode. When adding a record to Phone Book, users also **have to reboot** the machine, and the record will be effective immediately.

```
-----u
usr/config$ pbook
```

Phone book information and configuration

Usage:

```

pbook [-print]
      [-add [name string][e164 number][IP address][port number]
        [drop used][insert digits]]
      [-modify number [name string][e164 number][IP address][port number]
        [drop used][insert digits]]

```

[-delete number]

pbook -print Display phone book information and configuration.

-add Add new phone book record.

name : 1 ~ 10 characters.

e164 : 1 ~ 10 digits.

ip : IP adress.

port : 1024 ~ 65535.

drop : Drop prefix (0=Disable, 1=Enable).

insert : 1 ~ 10 digits.

-modify Modify phone book record.

name : 1 ~ 10 characters.

e164 : 1 ~ 10 digits.

ip : IP adress.

port : 1024 ~ 65535.

drop : Drop prefix (0=Disable, 1=Enable).

insert : 1 ~ 10 digits.

-delete Delete phone book index record.

Note:

Range of IP address setting (0.0.0.0~255.255.255.255).

Range of index setting value (1~100).

Example:

pbook -print

pbook -add name test e164 1234 ip 192.168.1.10

pbook -add name test e164 1234 ip 192.168.1.10 port 1720 drop 1 insert 5678

pbook -modify 1 name test e164 5678 ip 192.168.1.10 port 1720 drop 0

pbook -delete 1

usr/config\$

Parameter Usages:

-print print out current contents of Phone Book. (**pbook -print**) Users can also add *index number*, from 1 to 100, to the parameter to show specific phone number. (Ex. **pbook -print 1**)

Note: <index number> means the sequence number in phone book. If users do request a specific index number in phone book, Gateway will give each record a automatic

sequence number as index.

-add add a new record to phone book. When adding a record, users have to specify **name**, **ip**, and **e164** number to complete the command.

name name to represent callee.

e164 e.164 number for mapping with IP address of callee

ip ip address of callee

port call signal port number of callee

drop drop e.164 number when dial out. 0 means to keep e.164 number, 1 means to drop e.164 number when dialing out.

insert insert digits.(1~10 digits)

-modify modify an existing record. When using this command, users have to specify the record's index number, and then make the change.

-delete delete a specific record. "pbook -delete 3" means delete **index 3** record.

PhoneBook Rules:

The e164 number defined in phone book will fully carry to destination. It is not just a representative number for destination's IP Address. In other words, user dial this e164 number to reach destination, destination will receive the number and find out if it is matched to its e164, including Line number in some particular device.

4.2.15 [voice]

The voice command is associated with the audio setting information. There are four voice codecs supported by Gateway.

usr/config\$ voice

Voice codec setting information and configuration

Usage:

voice [-print]

[-send [G723 ms] [G729 ms] [G729A ms] [G729B ms] [G729AB ms] [G711U ms] [G711A ms]]

voice [-priority [G723] [G729] [G729A] [G729B] [G729AB] [G711U] [G711A]]

[-volume line [voice level][input level][dtmf level]]
[-nscng [G711U used1][G711A used2][G723 used3]]
[-echo used][-mindelay t1][-maxdelay t2]

- print* *Display voice codec information and configuration.*
- send* *Specify sending packet size.*
 G.723 (30/60/90 ms)
 G.729 (20/40/60/80 ms)
 G.729A (20/40/60/80 ms)
 G.729B (20/40/60/80 ms)
 G.729AB (20/40/60/80 ms)
 G.711U (20/40/60 ms)
 G.711A (20/40/60 ms)
- priority* *Priority preference of installed codecs.*
 G.723
 G.729
 G.729A
 G.729B
 G.729AB
 G.711U
 G.711A
- volume* *Specify the following levels:*
 voice volume (0~63, default: 30),
 input gain (0~63, default: 30),
 dtmf volume (0~31, default: 23),
- nscng* *No sound compression and CNG (G.723.1 only, 0=Off, 1=On).*
- echo* *Setting of echo canceller. (0=Off, 1=On, per port basis).*
- mindelay* *Setting of jitter buffer min delay. (0~150, default: 90).*
- maxdelay* *Setting of jitter buffer max delay. (0~150, default: 150).*

Example:

```
voice -send g723 60 g729 60 g729a 60 g729b 60 g729ab 60 g711u 60 g711a 60
voice -volume 1 voice 20 input 32 dtmf 27
voice -echo 1 1 1 1
```

usr/config\$

Parameters Usage:

- print print current voice information and configurations.
- send define packet size for each codec. 20/40/60ms means to send a voice packet per 20/40/60 milliseconds. The smaller the packet size, the shorter the delay time. If network is in good condition, smaller sending packet size is recommended. In this parameter, 20/40/60ms is applicable to G.711u/a law, and G.729/G.729A/G.729B/G.729AB codec, while 30/60ms is applicable to G.723.1 codec.
- priority codec priority while negotiating with other h323 device. This parameter determines the listed sequence in h.245 TCS message. The codec listed in left side has the highest priority when both parties determining final codec. User can also select the particular codec without others.

```
usr/config$ voice -priority g723 (only select this codec)
usr/config$ voice -priority g723 g729 g711u g711a (select four codecs,
and g723 is the first choice)usr/config$ line -config 1 hotline 1001
```

- volume There are three adjustable value. **voice volume** stands for volume, which can be heard from Gateway side; **input gain** stands for volume, which the opposite party hears; **dtmf** volume stands for DTMF volume/level, which sends to its own Line.

Note, level of volume is too high or too low may be result in bad performance while connecting to each other.

- nscng silence suppression and comfort noise generation setting (1 = ON; 0 = OFF). It is applicable to G.723 codec only. An example is demonstrated below:

```
usr/config$ voice -nscng q723 1
```

- echo activate each canceler (1 = ON; 0 = OFF).
- mindelay the minimum jitter buffer size. (Default value= 90 ms)
- maxdelay the minimum jitter buffer size. (Default value= 150 ms)

```
usr/config$ voice -mindelay 90 -maxdelay 150
```

*Note: be sure to know well the application before you change **voice** parameters because this might cause incompatibility.*

4.2.16 [support]

This command provides some extra functions that might be needed by users.

```
usr/config$ support
```

Special Voice function support manipulation

Usage:

```
support [-print][-t38 used][-t38ecm used][-t38asn1 used][-faxrdd digits]
        [-fstart used][-tunnel used][-h245fs used][-earlyh245 used]
        [-h450 used]
```

support -print Display support information and configuration.

```
-t38      T.38(FAX) (0=Disabled, 1=Enabled).
-t38ecm    T.38(FAX) ECM (0=Disabled, 1=Enabled).
-t38asn1   T.38(FAX) ASN.1 support (0=Disabled, 1=Enabled).
-faxrdd    FAX redundancy depth (0 ~ 2).
-fstart    Fast start (0=Disabled, 1=Enabled).
-tunnel    H245 Tunneling (0=Disabled, 1=Enabled).
-h245fs    H245 message after FastStart support (0=Disabled, 1=Enabled).
-earlyh245 EarlyH245 support (0=Disabled, 1=Enabled).
```

Example:

```
support -t38 1
support -t38ecm 1
support -t38asn1 1
support -faxrdd 1
support -fstart 1
support -tunnel 1
support -h245fs 1
support -earlyh245 1
```

```
usr/config$
```

Parameter Usages:

- print print current settings in **support** command.
- t38 to switch ON/OFF (1 = ON; 0 = OFF) T.38 fax ability. When T.38 ability is ON, Gateway will automatically defer codec (G.723 or G.729 series) to T.38 when FAX signal is detected.
- t38ecm to switch ON/OFF (1 = ON; 0 = OFF) T.38 fax Error Correction Mode ability. When high-speed T.38 FAX is running, Gateway will automatically execute ECM function.
- t38asn1 Enable the ASN.1 support with the FAX.
- faxrdd set fax redundancy depth. User can increase FAX redundancy depth when network traffic is heavy. For example, if user set fax redundancy as 2, Gateway will resend fax packets every 2 packets.
- fstart to switch ON/OFF (1 = ON; 0 = OFF) fstartStart function. Fast Start function can shorten the connection time if the opposite party also supports fastStart.
- tunnel to switch ON/OFF (1 = ON; 0 = OFF) H.245 tunneling function. If the function is ON, Gateway will send H.245 (Call Control messages) via H.225's (Call Signal messages) link. The function is effective only when both sides support H.245 tunnel.
- h245fs If the function is ON, Gateway can send H.245 messages after FastStart.
- earlyh245 enable/disable early H.245 function. The function is effective only when both sides support early H.245.

Note: it is not recommended to change the value in this command, only if users do know well the application. This might cause incompatibility with other devices.

4.2.17 [sysinfo]

Show the status of the port and registrations

usr/config\$ sysinfo

System information

Index Registration Status

=====

1 OK Ready

2 OK Ready

3 OK Ready

4 OK Ready

usr/config\$

4.2.18 [route]

This command is to set routing table for Gateway.

usr/config\$ route

Routing table information and configuration

Usage:

route [-print]

[-add [prefix number][dst number][e164 number][min number]

[max number][hunt number]][-delete index]

[-modify [index][prefix number][dst number][e164 number]

[min number][max number][hunt number]

[-ip [dst number][e164 number]][-fxo [dst number][e164 number]]

route -print *Display routing table information.*

-add *Add new routing table record.*

prefix *The prefix of dialed number.*

dst *Destination port(1=FXO, 2=IP).*

e164 *Destination e164 number(when destination is FXO).*

max *Max digits.(0 ~ 255)*

hunt *Hunt method for busy forward(0=NONE, 1=GROUP,*
2=ALL).

-delete *Delete routine table index record.*

-modify *Modify routing table record.*

prefix *The prefix of dialed number.*

dst *Destination port(1=FXO, 2=IP).*

e164 *Destination e164 number(when destination is FXO).*

min *Min digits.(0 ~ 255)*

hunt *Hunt method for busy forward(0=NONE, 1=GROUP,*
2=ALL).

- ip *Change the IP default rule.(1=FXO, 2=IP)*
- fxo *Change the FXO default rule.(1=FXO, 2=IP)*

Example:

```
route -add prefix 100 dst 1 e164 1001 min 1 max 3 hunt 1
route -ip dst 1 e164 1001
route -fxo dst 2 e164 x
route -modify 1 prefix 100 dst 0 e164 1001 min 1 max 3 hunt 1
route -delete 1
```

usr/config\$

Parameter Usages:

- print print out all routing table information
- add add a routing rule in routing table. User can add less than 50 rules.
(***route –add prefix “prefix number” dst “destination port type” e164 “e.164 number of port” min “minimum digits needed” max “maximum digits can’t be exceeded”***)
- delete delete a routing rule in routing table (***route –delete “index of routing rule”***)
- modify modify a routing rule in routing table. (***route –modify “index of routing rule” prefix “prefix number” dst “destination port type” e164 “e.164 number of port” min “minimum digits needed” max “maximum digits can’t be exceeded”***)
- ip create routing table for incoming call from IP side. (***route –ip dst “destination port type” e164 “e.164 number of port”***)
- fxo create routing table for incoming call from FXO Lines. (***route –fxo dst “destination port type” e164 “e.164 number of port”***)
- prefix prefix of dialed number
- dst destination port, 1 means FXO Lines, 2 means IP side, x means no determinate number.
- e164 destination e.164 number. This only need to be set when routed port is FXS TELs or FXO Lines to determine which port will this call be routed to.
- min minimum digits needed.
- max maximum digits needed.
- hunt set hunt method for busy forward. 0 means no hunting, 1 means hunting method follows the rule of [line], 2 means hunting method

is to hunt between all ports in the same type.

Usage Example:

1. route –add prefix 100 dst 1 e164 1001 min 1 max 3 hunt 1

This command means if gateway has incoming call's prefix number is 100, and total digits is between 1 to 3, this call will be routed to FXS TEL 1001, and if TEL 1001 is busy, call will be routed to another FXS TEL.

2. route –fxo dst 1

This command means incoming call from FXO Lines will be routed to FXO side.

Note:

(1) If user doesn't want to determine a specific port to route, e.164 number must set as "x" and the call will be routed to the first port.

(Ex. route –ip dst 1 e164 x)

(2) Default value: Incoming call from FXS and FXO ports will be forward to IP side.

4.2.19 [tone]

This command is basically for FXO ports.

usr/config\$ tone

Disconnect tone and remote ring back tone configuration

Usage:

*tone [-print][[num][freqLo][freqHi][freqLoLev][freqHiLev]
[Tone1ON][Tone1OFF][Tone2ON][Tone2OFF]]*

tone -print Display tone configuration.

num Tone index(1~4=Disconnect tone, 5~8=Remote ring back tone).

freqLo Low frequency.

freqHi High frequency.

freqLoLev Low level frequency.

freqHiLev High level frequency.

Tone1ON .

Tone1OFF .

Tone2ON .

Tone2OFF .

Example:

tone -print

tone 1 480 620 1 1 50 50 1023 1023

usr/config\$

Parameter Usages:

-print show all tone configuration

[num] **tone index. 1~4 is disconnect tone, 5~8 is remote ring back tone.**

For FXO ports Gateway must detect disconnect tone to determine when to disconnect the call, so user must set disconnect tone of PBX or PSTN network connected to FXO ports.

When making a call from FXO ports, there are 2 ways to detect callee has already picked up the call, one is to detect reverse signal, the other is to detect the termination of ring back tone, so user must set ring back tone of PBX or PSTN network.

(If user doesn't know about the frequency of disconnect tone or ring back tone, please refer to **[record]** command to detect frequency.)

For each tone may has 1 set or 2 sets (high and low) of frequencies. If user wants to set 0 in on/off time, please set "1023" represent "0". (ex. **tone 1 620 480 8 8 50 50 1023 1023**)

**(tone "index of tone" "frequency of high" "frequency of low"
"level of high" "level of low" "on time of high" "off time of high"
"on time of low" "off time of low")**

4.2.20 [fxopwd]

This command is for FXO ports.

usr/config\$ fxopwd

FXO password information and configuration

Usage:

fxopwd [-print][-add [passwd number][direction number]]

[-modify index [passwd number][direction number]]
[-delete index]

fxopwd -print Display FXO password information and configuration.
-add Add new FXO password record
passwd The password.
direction FXO direction(0=Out, 1=In, 2=Both).
-modify Modify FXO password record
passwd The password.
direction FXO direction(0=Out, 1=In, 2=Both).
-delete Delete index

Example:

fxopwd -add passwd 1234 direction 0
fxopwd -modify 1 passwd 1234 direction 2
fxopwd -delete 1

usr/config\$

Parameter Usages:

-print show all FXO password configuration
-add add 1 set of FXO password
-delete delete 1 specific set of FXO password
-modify modify 1 specific set of FXO password
passwd password
direction the direction number which password implement. 0 means the calls from IP side to PSTN side, 1 means the calls from PSTN side to IP side, 2 means both sides. Once user enables FXO password function, caller will be asked to enter password when call in PSTN side or IP side according to the direction of password being implemented. (***fxopwd -a passwd "password" direction 0/1/2***)

Note:

User can set total 10 sets of password, no matter what the direction is.

4.2.21 [record]

User can record greeting and askpin file and analyze tone frequency by

calling in FXO line of Gateway.

usr/config\$ record

Recoed greeting voice and ask pin code voice, tone analize.

Usage:

record -greeting filename

-askpin filename

-tone

Example:

record -greeting greeting.100

record -askpin askpin.100

record -tone

usr/config\$

Parameter Usages:

-greeting record greeting file. User must assign a file name for greeting,
once record is finished, file recorded will be display in rom –print.

usr/config\$ record -greeting greeting.test

Please off hook the port 1 and press (N) for the next step...

n

Press (R) to start record...

r

Press (S) to stop record...

.....

.....

.....S.....

.....
Press (P) to play the voice or (W) to write to flash or (Q) to quit...

p

w

Please wait a moment...

Write flash ok...

*Boot Rom : boot.104
Application Rom : 3804_0701.bin
DSP App : 48302ce3.140
DSP Kernel : 48302ck.140
DSP Test Code : 483cbit.bin
Greetings : greeting.test
Ask Pin : askpin.102*

q
usr/config\$

-askpin record askpin file. User must assign a file name for askpin file,
once record is finished, file recorded will be display in rom –print.

usr/config\$ record -askpin askpin.test

Please off hook the port 1 and press (N) for the next step...

n

Press (R) to start record...

r

Press (S) to stop record...

.....
.....
.....S.....
.....
.....

Press (P) to play the voice or (W) to write to flash or (Q) to quit...

p

w

Please wait a moment...

Write flash ok...

*Boot Rom : boot.104
Application Rom : 3804_0701.bin
DSP App : 48302ce3.140
DSP Kernel : 48302ck.140
DSP Test Code : 483cbit.bin
Greetings : test.100
Ask Pin : askpin.test*

q

usr/config\$

-tone analyze tone frequency. Gateway can analyze tone frequency as
user provide tone in FXO Line1.

usr/config\$ record -tone

usr/config\$ record -tone

Press (R) to start record...

r

.....
.....
.....
.....
.....

Analizing!! Please wait a moment...

Frequency 1 : 620

Frequency 2 : 474

0.25sec on 0.25sec off

usr/config\$

The Procedures of recording the disconnect tone

Before you start □

Two PSTN lines which connected with the Line 1 and Line 2 port.

Configure Peer-to-Peer mode.

Please record the disconnect tone just follow the stage as below □

1. Please enter the command before you record the disconnect tone□
record -tone
2. Make a call from PSTN side into Line 2 port.
3. You will get a greeting when the call enter the gateway.
4. Please dial the number of the Line 1 port.
5. You will get another dial tone from the PSTN line which was connected with the Line 1 port.
6. Answer the call and make sure the call is connected.
7. Hang up the phone which is from the Line 2 port and you will get the disconnect tone from the Line 1 port.
8. When you get the disconnect tone from the Line 2 port, press <R> and <ENTER> buttons to start recording the disconnect tone.
9. Please hang up the phone if you get the message as below□*Analizing!!*
Please wait a moment...
10. There are three values you will get after analyzing. Please leave the value which is over 1000 Hz, this is not the frequency of disconnect tone.
11. Please put the frequency in the tone table just follow the command□
tone 4 420 680 8 8 25 25 50 50

□Example-1□

(Make a call from PSTN to FXO port)

```
usr/config$ record -tone
```

Press (R) to start record...

(Please make sure that you are already finish the steps 2 ~ 7)

r (Press "Enter" button after you key in "R")

.....

.....
.....
.....

Analizing!! Please wait a moment...

(You could hang up the call from PSTN if you get this message)

Frequency 1 : 481

Frequency 3 : 621

0.25sec on 0.25sec off

tone 4 481 621 8 8 25 25 1023 1023

(Put this value in to the tone table)

tone -print

Disconnect tone 1 parameter

Frequency high : 620

frequency low : 480

frequency high level : 8

frequency low level : 8

Tone1 on : 25

Tone1 off : 25

Tone2 on : 1023

Tone2 off : 1023

Disconnect tone 2 parameter

Frequency high : 450

frequency low : 0

frequency high level : 8

frequency low level : 0

Tone1 on : 35

Tone1 off : 35

Tone2 on : 1023

Tone2 off : 1023

Disconnect tone 3 parameter

Frequency high : 620

frequency low : 480
frequency high level : 8
frequency low level : 8
Tone1 on : 50
Tone1 off : 50
Tone2 on : 1023
Tone2 off : 1023

Disconnect tone 4 paramter

Frequency high : 621
frequency low : 481
frequency high level : 8
frequency low level : 8
Tone1 on : 25
Tone1 off : 25
Tone2 on : 50
Tone2 off : 50

(Confirm the values is correct or not)

(Key in the commit and reboot command if you finish the procedures as above)

Example-2

(Make a call into FXO port)

usr/config\$ record -tone

Press (R) to start record...

(Please make sure that you are already finish the steps 2 ~ 7)

r (Press "Enter" button after you key in "R")

.....
.....
.....
.....

Analizing!! Please wait a moment...

(You could hang up the call from PSTN if you get this message)

Frequency 1 : 473

Frequency 2 (2623) is more than 1000, please ignore it.

0. 25sec on 0.25sec off

tone 4 473 473 8 8 25 25 1023 1023

(Please configure the high and low frequency as the same value if you just get a singal frequency)

tone -print

Disconnect tone 1 paramter

Frequency high	: 620
frequency low	: 480
frequency high level	: 8
frequency low level	: 8
Tone1 on	: 25
Tone1 off	: 25
Tone2 on	: 1023
Tone2 off	: 1023

Disconnect tone 2 paramter

Frequency high	: 450
frequency low	: 0
frequency high level	: 8
frequency low level	: 0
Tone1 on	: 35
Tone1 off	: 35
Tone2 on	: 1023
Tone2 off	: 1023

Disconnect tone 3 paramter

Frequency high	: 620
frequency low	: 480
frequency high level	: 8
frequency low level	: 8
Tone1 on	: 50
Tone1 off	: 50
Tone2 on	: 1023

Tone2 off : 1023
 Disconnect tone 4 paramter
 Frequency high : 473
 frequency low : 473
 frequency high level : 8
 frequency low level : 8
 Tone1 on : 25
 Tone1 off : 25
 Tone2 on : 50
 Tone2 off : 50

(Confirm the values is correct or not)

(Key in the commit and reboot command if you finish the procedures as above)

4.2.22 [ddns]

The dynamic DNS service information and configuration

usr/config\$ ddns

The dynamic DNS service information and configuration

Usage:

*ddns [-print][-enable used][-server Address][-hostname Name][-id Account]
 [-passwd Password][-checkip used][-checkipsrv Address][-delay time]
 [-force IP]*

<i>ddns -print</i>	<i>Display Dynamic DNS information and configuration.</i>
<i>-enable</i>	<i>Use the dynamic DNS service(0=Disable, 1=Enabled).</i>
<i>-server</i>	<i>Specify DDNS server address.</i>
<i>-hostname</i>	<i>Registered domain name.</i>
<i>-id</i>	<i>Registered account ID.</i>
<i>-passwd</i>	<i>Registered account password.</i>
<i>-checkip</i>	<i>Check the host current IP address(0=Disable, 1=Enabled).</i>
<i>-checkipsrv1</i>	<i>Specify IP address check server.</i>
<i>-checkipsrv2</i>	<i>Specify secondary IP address check server.</i>
<i>-delay</i>	<i>Setting the service delay time (1~59 minutes or 1~24 horus).</i>
<i>-force</i>	<i>Force execute the dynamic DNS service.</i>

Example:

```
ddns -print
ddns -enable 1
ddns -server member.dyndns.org -hostname ipphone.dyndns.org
ddns -delay 30 m (30 minutes)
ddns -delay 12 h (12 hours)
ddns -force 11.22.33.44
```

usr/config\$

Parameter Usages:

-enable enable the DDNS function
-server enter the server address of the DDNS server you use
-hostname enter the domain name address which you get from the DDNS server
-id key in your id
-passwd key in your password
-checkip enable or disable the check current user's ip address
-checkipsv1 enter the ip address of the check server
-checkipsv2 the secondary ip address of the check server
-delay service delay time
-force execute the DDNS function all the times

4.2.21 [pt]

RTP payload type configuration and information

usr/config\$ pt

RTP payload type configuration and information

Usage:

```
pt [-print][-rfc2833 type][-dtmf type][-fax type][-faxbypass type]
   [-modembypass type][-redundancy type][-modemrelap type]
```

<i>pt -print</i>	<i>Display the RTP payload type information.</i>
<i>-rfc2833</i>	<i>Configure the DTMF RFC2833 payload type.</i>
<i>-dtmf</i>	<i>Configure the DTMF payload type.</i>
<i>-fax</i>	<i>Configure the FAX payload type.</i>

- faxbypass* *Configure the FAX ByPass payload type.*
- modembypass* *Configure the MODEM ByPass payload type.*
- redundancy* *Configure the Redundancy payload type.*
- modemrelay* *Configure the MODEM Relay payload type.*

Example:

pt -rfc2833 96 -fax 101

usr/config\$

4.2.23 [rom]

ROM file information and firmware upgrade function.

usr/config\$ rom

ROM files updating commands

Usage:

rom [-app] [-dsptest] [-dspcore] [-dspapp] [-rbpcm] [-htpcm]

[-greeting] -s TFTP/FTPserver ip -f filename

rom [-method mode] [-ftp username password]

rom -print

-print *show versions of rom files. (optional)*

-app *update main application code(optional)*

-boot *update main boot code(optional)*

-boot2m *update 2M code(optional)*

-dsptest *update DSP testing code(optional)*

-dspcoreupdate *DSP kernel code(optional)*

-dspapp *update DSP application code(optional)*

-rbpcm *update RingBack Tone PCM file(optional)*

-htpcm *update Hold Tone PCM file(optional)*

-greeting *update Greetings PCM file(optional)*

-askpin *update AskPin file(optional)*

-s *IP address of TFTP/FTP server (mandatory)*

-f *file name(mandatory)*

-method *download via TFTP/FTP (TFTP: mode=0, FTP: mode=1)*

-ftp *specify username and password for FTP*

Note:

This command can run select one option in 'app', 'dsptest', 'dspcore',

'dspapp', and 'rbpcm'.

Example:

rom -method 1

rom -ftp vwusr vwusr

rom -app -s 192.168.4.101 -f app.bin

Parameter Usages:

- print show versions of all rom files
- app, boot, dsptest, dspcore, dspapp to update main Application program code, Boot code, DSP testing code, DSP kernel code, or DSP application code.
- boot2m **boot2m** parameter let users to upgrade the whole system flash, including all the firmware that mentioned above. If 2M rom file update is executed, **users have to set again the MAC address of FXO GateWay or it will cause conflict on Ethernet because the original MAC address is erased during 2M ROM file upgrading.**

Note: To set mac address please key in command setmac:(when key in MAC address ,press enter each time after key in two characters):

usr/config\$ setmac

- enter mac address (xxxxxxxxxx):

0001a8002baa

- the mac address is 00 01 a8 00 2b aa

*- if mac address is correct,please press 'y' to
setup configuration,else press 'n' to continue*

y

- greeting The greeting file can be updated by users. The attributes of sound file should complied to: μ -law, 8000 Hz , 8 bit, Mono, 7 kb/s
- askpin update ASKPIN sound file. This is the greeting sound that when asking for pincode.
- s to specify TFTP server's IP address when upgrading ROM files.
- f to specify the target file name, which will replace the old one.
- method to decide using TFTP or FTP as file transfer server. "0" stands for

TFTP, while “1” stands for FTP.

- ftp if users choose FTP in above item, it is necessary to specify pre-defined username and password when upgrading files.

4.2.24 [passwd] command

For security concern, users have to input the password before entering configuration mode.

usr/config\$ passwd

Password setting information and configuration

Usage:

passwd -set Loginname Password

Note:

Loginname can be only 'root' or 'administrator'

Example:

passwd -set root 2fxo

Parameter Usages:

-passwd <login name> <password>

Note: <login name> can be “root” or “administrator” only. “root” and “administrator” have the same authorization, except3 commands that can be executed by “root” only – “passwd –set root”, “rom –boot”, and “flash –clean”